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ARTMENTS OF LABOR AND HEALTH, EDUCATION, AND WELFARE APPROPRIATIONS FOR 1963

HEARINGS

BEFORE A

SUBCOMMITTEE OF THE
COMMITTEE ON APPROPRIATIONS
HOUSE OF REPRESENTATIVES

EIGHTY-SEVENTH CONGRESS

SECOND SESSION

SUBCOMMITTEE ON DEPARTMENTS OF LABOR AND HEALTH, EDUCATION, AND WELFARE AND RELATED AGENCIES APPROPRIATIONS

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WINFIELD K. DENTON, Indiana	MELVIN R. LAIRD, Wisconsin
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ROBERT M. MOYER, *Staff Assistant to Subcommittee*

DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE

PART 2

Public Health Service

Printed for the use of the Committee on Appropriations

Library
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Surgeon General. Engineer Director Gordon McCallum, Chief of the Division of Water Supply and Pollution Control, has been promoted to the rank of Assistant Surgeon General. Both of these actions are in keeping with the increasing importance of these two programs in the international and national activities of the Public Health Service.

A few other staff changes at the divisional level have been made; but I shall leave it to the bureau chiefs to introduce the new program administrators at the appropriate time.

Since the Public Health Service has a long list of witnesses to be heard by your committee, Mr. Chairman, I will confine my remarks mainly to our overall request and the broad purposes underlying our estimates. My staff and I will be glad to answer to the best of our ability any questions the committee wishes to raise.

TOTAL ESTIMATE

The total Public Health Service budget estimate for 1963 amounts to $1,452,536,000. That sum represents an increase of 11 percent over the operating budget for the current year. In our judgment it would permit continued progress in all activities for which the Public Health Service at present has statutory authority.

SCIENTIFIC RESEARCH

The basis of progress in health and medical affairs is scientific research in the biological, medical, and environmental sciences. As this committee knows, the pace of medical discovery has been very rapid in the past decade. Nevertheless, many of the most significant discoveries have served to open new fields for exploration rather than to solve specific problems definitively. The widest gaps in knowledge now are in the interrelations of fundamental biological processes within the individual and with environmental factors. Further, despite striking advances in the diagnosis and treatment of disease, we are still very far from practical means for the prevention of the major causes of death and long-term illness. Therefore it is of the greatest importance that the national research effort on health and medical problems be continued at an accelerated pace.

Our budget estimates for 1963 reflect this concern for increased health research. The estimate for $780,400,000 for the National Institutes of Health represents an increase of more than $103 million over the 1962 operating plan. A combined increase of about $12 million in our environmental health programs is intended primarily to increase research and training grants in air and water pollution, milk and food sanitation, and radiology, as well as to expand our own studies in those fields and in occupational diseases.

APPLICATION OF RESEARCH FINDINGS

A second broad purpose of the Public Health Service—though not secondary in importance, Mr. Chairman—is to facilitate the application of research findings to human needs. Although the NIH, our Public Health Service hospitals and Indian health program contribute substantially to this purpose, we look mainly to the Bureau of State Services to bridge the gap between the Nation's research centers and our American communities. This is true not only with respect to medical knowledge, but also in the environmental and social sciences.

The Bureau of State Services administers programs in two broad categories: Community health services and facilities and environmental health. I propose to discuss both these areas in a little more detail. Suffice it to say at this time that the estimates for community health services, excluding the construction of facilities, reflect an increase of $18,133,000, or 26 percent above the 1962 level.

EXPANDING PUBLIC HEALTH PROGRAM

A third objective of our 1963 budget request is to improve the overall performance of the Public Health Service in carrying out its expanding program responsibilities. This requires some additional facilities, additional funds for certain of our direct operations, and strengthened management services in the Office of the Surgeon General.

BUILDINGS AND FACILITIES

With respect to buildings and facilities, our estimates total $27 million, excluding construction of Indian health facilities. This sum would permit us to construct two water pollution laboratories, expand and improve National Institutes of Health facilities, and provide equipment for the expanded Communicable Disease Center in Atlanta. It does not include funds for site acquisition and plans for the Environment Health Center. It is hoped that a request for funds to cover this need will be submitted shortly.

Mr. FOGARTY. In what form?

Dr. TERRY. I am not certain. We would prefer to have it submitted in the form of an amendment if that would be acceptable to the chairman.

Mr. FOGARTY. I would prefer that if it is possible, we get it in the form of an amendment, then it could be considered by this committee.

Mr. KELLY. I had a discussion with the Budget Bureau the other day and I have asked them to endeavor to get it as an amendment while this committee has the bill under consideration. They have told me that they will make every effort to have a resolution by the end of February so that the President can submit it.

Dr. TERRY. We have specifically requested that the amendment form be used if possible rather than supplemental because we know of the interest of this committee not only in that but its greater understanding of our programs in this area.

MEDICAL SERVICES

Small increases in operating funds are requested for Public Health Service hospitals and medical care and foreign quarantine. We believe that the additional funds for our hospitals will sustain the improvement in their medical services and clinical research, made possible last year by this committee's interest. We have had this support for several years.

LIBRARY AND HEALTH STATISTICS

The National Center for Health Statistics and the National Library of Medicine have progressed in their services to health intelligence and medical science communications respectively. Our 1963 estimates include small increases for both these important services.

Electronic data processing equipment has been installed in the Center, located in the Health, Education, and Welfare building here in Washington. It is being operated by well-qualified staff to improve and facilitate the analysis and reporting of vital statistics and National Health Survey information. The Center also serves as a demonstration of data processing for State health agencies.

The new National Library of Medicine was dedicated in December 1961, and we expect to complete the task of transferring its vast collections to the new building in the next few months. The National Library of Medicine is now responsible for the scientific translation and the medical literature analysis and retrieval (MEDLAR) programs formerly financed by the National Institutes of Health. Our 1963 estimate for the Library reflects these new responsibilities.

OFFICE OF SURGEON GENERAL

The growth of Public Health Service programs and the increased interest of official and private groups in our activities have placed heavy burdens on the Office of the Surgeon General. As you know, Mr. Chairman, the aggregation of staff activities under that title is, in effect, the "cockpit" of the Public Health Service. In addition to my immediate office, it includes the units responsible for international health, emergency health, and for the coordination of Service-wide budget and financial affairs, personnel management and training, program planning and analysis, public information, and administrative service. We urgently need additional funds to provide some new positions and to finance improved services in those areas. I am, therefore, requesting an increase of $290,000 for "Salaries and expenses, Office of the Surgeon General."

I wish now, Mr. Chairman, to discuss briefly the gains we hope to make in research, environmental health, community services and facilities under our proposed 1963 budget.

NATIONAL INSTITUTES OF HEALTH

The 1963 estimates for all research grants programs include sufficient funds to pay indirect (overhead) costs of not more than 20 percent of direct costs for all new and continuation research grants approved after January 1, 1963. Although this provision affects several parts of the Service, it affects the National Institutes of Health chiefly, both in volume and scope. As the committee knows, our national advisory councils for many years have urged a more liberal indirect cost policy for NIH research grants. Their recommendations stem from the fact that modern scientific research is primarily an institutional activity, dependent upon a complex organization of personnel and supporting services. We are proposing the 20-percent maximum allowance as an interim policy, pending completion of a

Government-wide study of indirect costs in all Federal research grants programs.

The NIH estimate includes $50 million for matching grants for the construction of health research facilities. As you know, Mr. Chairman, this sum represents an increase of $20 million over the previous authorization of $30 million. An amendment to the Community Health Services and Facilities Act of 1961 authorized the increased amount, pending further consideration of legislation to extend the program beyond 1963.

ENVIRONMENTAL HEALTH

Events during the past year further emphasize the need for an expanded and integrated environmental health program in the Public Health Service. In his message to the Congress on natural resources last February, the President stressed the need for augmented Federal activities in air and water pollution control.

The Congress increased the authorization for construction grants for waste treatment facilities and strengthened the Water Pollution Control Act in other ways. Our estimates for 1963 reflect these provisions, in proposed expansion of water research and comprehensive river basin studies, and in a request for the full authorization of $90 million for construction grants. It is our hope that some of the Nation's larger cities will benefit from the new grant provisions.

Mr. Chairman, this committee was responsible last year for an increase in appropriations for "Milk, food, interstate and community sanitation" in order to provide funds for two shellfish research laboratories. I am pleased to inform you that those facilities, one in your own State and one in Alabama, will be completed in 1963. We anticipate that these laboratories will greatly enhance our capacities to prevent the transmission of pathogenic viruses and other toxic substances through food shellfish.

Studies conducted this past year have further demonstrated the association of high levels of air pollution with increased illness and mortality due to respiratory diseases. In cities like New Orleans, for example, there is a clear relationship between a higher incidence of severe attacks in asthmatic patients and a rise in the concentration of atmospheric pollutants. We hope to intensify our investigations in this field.

The resumption by the Russians of nuclear testing has introduced new and additional radionuclides into the environment through fallout. This has created an emergency in our radiological health program, requiring adjustments in our planned activities so as to step up surveillance in 1962 when the chief fallout is expected. Our budget estimates for 1963 would provide for increased surveillance and research, particularly in an attempt to develop countermeasures which would, we hope, reduce and control radiation exposure. We are also proposing, for the first time, formula grants to the States for strengthening their radiological health programs.

During the past year, Mr. Chairman, I appointed a Committee on Environmental Health Problems, under the chairmanship of Dr. Paul Gross, to advise me on the Public Health Service's needs in that field. He is from Duke University. The Gross report again—and I believe it is the third expert study on environmental health in the past 3 years—stressed the need for the Service to expand and integrate its intramural and extramural activities in this field. The Gross Committee emphasized particularly the responsibility of the Service for the support of training, through grants and other devices, to help the Nation produce qualified personnel in the new and rapidly developing environmental health sciences. This committee also reaffirmed the necessity for an environmental center in the Washington area, to afford effective coordination of our activities with other Federal research programs, such as the Bureau of Standards, the National Aeronautics and Space Administration, the National Institutes of Health, and the Atomic Energy Commission.

COMMUNITY HEALTH SERVICES AND FACILITIES

The passage of the Community Health Services and Facilities Act of 1961 may be regarded as the most significant event of that year in improving the quantity and quality of medical care available to the American people. Since the implementation of this important legislation is reflected in our PHS budget estimates for 1963, I would like to summarize the major provisions of the act as a basis for my discussion.

The act increases the authorization for general formula grants to the States from $30 million to $50 million a year. In addition, it authorizes the Congress to earmark appropriations in formula grants for specific purposes. Through this provision, supplemental funds for 1962 have been made available specifically for community health services and a further increase is requested for 1963.

The act also establishes special project grants, with an authorization of $10 million a year for that purpose, to be awarded to private nonprofit and public organizations for the development of new and improved community services outside of hospitals. For increased experimentation within hospitals, the act amends the Hill-Burton provisions to authorize $10 million annually for research projects in that field, including the construction of experimental facilities.

We regard these two provisions as of exceptional value in the improvement of community services and facilities. In the past, not more than $5 million a year from all sources has been spent in this country for research in hospital administration and the organization and delivery of medical services. The act makes possible a strong forward thrust in the Nation's conduct of this highly productive type of experiment. Projects under both these provisions of the act will explore technical and operational methods that build the bridge between medical science and application.

The act further increases the Hill-Burton grant authorization for nursing home construction by $10 million, making a total of $20 million a year. The full authorization for this purpose, as well as for other long-term facilities and diagnostic centers is requested for 1963.

CHRONICALLY ILL AND THE AGED

Under these broad provisions, the Community Health Services and Facilities Act calls particular attention to the special needs of the chronically ill and the aged. In carrying out that mandate, the Public Health Service, the State health agencies, and scores of voluntary and public organizations throughout the country have focused attention on the improvement and extension of home care programs, nursing home services, and restorative care of the chronically ill and aged. The response of the States and of individual organizations has been enthusiastic and dynamic. Our 1963 estimates would increase formula grants to the States for chronic disease and health of the aged, as well as special projects in those fields.

However, I wish to note that our emphasis on chronic disease and health of the aged does not diminish our concern for general community services and facilities, both outside and inside hospitals. It is neither medically sound nor economically feasible for our communities to plan and expand their health programs exclusively around specific diseases or around one population group.

COMPREHENSIVE HEALTH CARE

The Public Health Service is dedicated to the concept of comprehensive health care. That is to say, we believe that our communities should be able to make available a continuum of health services to each individual when he needs them and where he needs them, without diminution of quality or disruption of delivery. Whether the services are provided under public or private auspices, however they are financed, the community has an obligation to see to it that services of high quality are available and are efficiently organized.

To assist our communities in the development of comprehensive health care, the Public Health Service has taken several steps during the past year. And we are applying the provisions of earlier legislation and of the Community Health Services and Facilities Act of 1961 toward that end.

For example, I would recall, Mr. Chairman, the opening of our Public Health Service Dental Field Center in San Francisco which you attended as an honored guest last November. The center serves as a community facility for research, demonstration, and training in dental public health. Especially, Mr. Chairman, it demonstrates that dental public health has a broader meaning than the inspection and prophylactic treatment of school children's teeth. It is, rather, one of those essential community services in comprehensive health care for all groups.

Another important step during the past year was the work of a Joint Committee of the American Hospital Association and the Public Health Service on areawide planning of hospital facilities. The report of that Committee lays the groundwork for much-needed community coordination of planning, construction, and operation of hospitals. Two States, New York and California, last year enacted legislation giving authority to their State health departments for the orderly development of local hospital facilities.

Further, I have established a new Division of Community Health Services in the Bureau of State Services to coordinate and augment our activities in the general fields of medical and public health administration. Last spring, the National Advisory Health Council and its Committee on Medical Care issued a report recommending an expanded role for the Public Health Service in these fields. The report states:

> Medical care in its inclusive sense encompasses all personal health services and their auxiliary and supporting resources which safeguard health and which ameliorate and cure disease and disability. No voluntary or governmental agency has the responsibility to evaluate continuously the medical care available to the population of the United States and to seek means of filling deficiencies that may be found. The Public Health Service should exercise leadership to bring about such reviews and to help develop programs for meeting present and emerging deficiencies * * * in cooperation with the many Federal, State, local, and voluntary agencies concerned with certain aspects of these problems.

MEDICAL ECONOMICS

For many years, several units of the Public Health Service have conducted nationally important studies in health and medical economics, community health organization and practice. We have also served as a center of information and technical aid on community surveys in health and medical fields. The coordination of these activities in the new division is a first step toward the need for a comprehensive source of medical care information, as broadly defined by the Council.

Since State and local governments are expanding their medical care activities, this step is all the more urgently needed. Closer cooperation in medical programs on the part of health, welfare, and education agencies at Federal, State, and local levels is required to assure effective and economical administration. In many instances, the State health department has been given new responsibilities for the professional supervision or review of medical programs administered by other State agencies. The Public Health Service thus has a clear responsibility to augment its consultative and technical assistance in such emerging problems as the costs, financing, organization, and standards of medical care.

DIVISION OF COMMUNITY HEALTH SERVICES

Since the Division of Community Health Services was activated so recently as November 1961, its future depends heavily on this committee's consideration of its first budget request. Although its chief, Dr. William H. Stewart, will give you the details, I would like to clarify the Division's mission. It has no administrative responsibilities basically different from those of other programs in the Bureau of State Services. As do other divisions, it will provide consultation and technical assistance to public and private groups; it will conduct and support research in its fields; and it will administer certain grants programs. Specifically, it is responsible for general formula grants to the States and for the public health training program.

The particular role of this Division, however, is of unique importance. It carries the Public Health Service's general responsibility for the application of medical knowledge to human needs. In this and other respects, it is the counterpart of the NIH Division of General Medical Sciences. The two serve as "unifiers" in their respective fields—research and application, both of which are increasingly fractionated by specialization and categorical approaches. While these forces are to be expected in an age of tremendous scientific and technical change, there must be some organization to exert a unifying force. Thus the Division of Community Health Services represents no single profession; it serves no particular population group; builds no facilities; combats no one disease or group of diseases. It aims rather to stimulate and support the development of high quality comprehensive services by the total professional and institutional community, for the total community of men, women, infants, and children.

HOUSE APPROPRIATIONS COMMITTEE REPORT, 1962

Mr. Chairman, the House committee report on DHEW appropriations, 1962, contained three directives to the Public Health Service on scientific communications, syphilis control, and infant mortality, respectively. I wish now to report briefly on our responses.

COMMUNICATION OF MEDICAL RESEARCH FINDINGS TO THE PRACTICING PROFESSION

The committee asked the Director of the National Institutes of Health to make a comprehensive report on activities and plans for the communication of medical research findings to the practicing professions. Dr. Shannon will present a report when he appears before the committee. However, this problem has important implications for so many areas of Public Health Service responsibility that I have asked Dr. Rogers, Director of the National Library of Medicine, and Dr. Bauer, Chief of the Bureau of State Services, to submit reports.

All three reports are essential parts of an enormous and complex whole. The rapidly accelerating research effort—worldwide in scope—is reporting results in such scope and volume that existing communication systems are not adequate to cope with the torrent of information. Moreover, the numbers of professional groups requiring scientific information are growing. The individuals have vastly different training and different practical interests. The types of medical information required by a space scientist, for example, are by no means the same as those required by a practicing physician or a professor of hygiene in a teacher's college. Yet all three need to be kept to date on significant medical research findings.

The responsibility for scientific communication is widely dispersed throughout the Nation's institutions and organizations engaged in the production, dissemination, and utilization of medical research findings. Within the Public Health Service, no one unit has exclusive responsibility for communication with the practicing professions.

The National Institutes of Health is the Service's chief generator of biomedical research findings which need to be communicated. But the content of its programs and the characteristics of its principal collaborators place primary emphasis on scientist-to-scientist communications.

The Bureau of State Services is our chief generator of community application of research findings. The BSS places primary emphasis on scientist-to-practitioner communications related to its operating programs.

The National Library of Medicine occupies a strategic position in communications, for it deals with the published biomedical research findings: a vast and growing literature. Hence the Library functions in both scientist-to-scientist and scientist-to-practitioner communications. Its MEDLARS project and the proposed extramural program would make substantial inroads on the accumulated volume of biomedical findings. However, speedier and wider dissemination of the literature will not assure that all readers will receive the information appropriate for their purposes, or that they will "read, mark, and inwardly digest" the significance of scientific findings.

Indeed, the planning of an effective program in medical science communications is far beyond the scope of the Public Health Service or any part of it. With this in mind, I am giving serious consideration to a proposal to convene a national conference on this subject. I would expect such a conference to bring together representatives of all major public and private organizations that have a part to play in scientific communications, and to develop plans for a better coordinated, more intensive effort in this increasingly important field.

VENEREAL DISEASE CONTROL

The committee instructed the Public Health Service to prepare for 1963 a program designed to deal realistically with the increase of venereal disease over the past few years. I thereupon appointed a special advisory committee, under the chairmanship of Dr. Leona Baumgartner, health commissioner of New York City, to assist us in the development of the program.

The committee has received Dr. Baumgartner's report. It recommends an intensive program calculated to eliminate syphilis as a public health problem if the program is conducted vigorously over a 10-year period. The plan requires rapid epidemiology, followup of positive laboratory findings, and working in cooperation with private medicine in all aspects of the control program. It would also intensify the followup and treatment of all patients appearing at public clinics with early syphilis. Our 1963 estimates include an increase of $1 million in the appropriation for venereal disease control. Our projections through 1966 contemplate further increases in accordance with the recommendations of our advisory committee.

Closely related to the success of the new syphilis control program is the Communicable Disease Center's national laboratory improvement program. A large segment of all communicable disease control depends upon the quality of diagnostic laboratory work. Checking the results of State laboratory tests in which a standardized test material was used, CDC discovered disturbing variations in the findings. With the increased funds requested for 1963, a vigorous and comprehensive program can be launched to raise the performance of all laboratories to a level commensurate with modern scientific and technical skills.

INFANT MORTALITY

Mr. Chairman, we appreciate the committee's charge to report on infant mortality. The Public Health Service is concerned about the loss of infant life in our country, as we are concerned about the total loss of life. The data on infant mortality which stimulated the committee's concern last year were, in fact, compiled and analyzed by Dr. Iwao M. Moriyama of our National Center of Health Statistics, and published by him in May 1960 in our Public Health Reports. Further evaluation of available data this past year enables us to answer some questions regarding infant deaths; but it also raises more questions which only medical and epidemiological research will answer.

Of course, there is no excuse for any of us that our infant mortality rate remains higher than that of other economically advanced countries. There is ample scientific and technical knowledge to prevent many of the infant deaths now occurring annually. The report we shall submit to you identifies some points for attack.

For example, in what infant groups do we find the highest mortality and the least progress in lifesaving? Where are they located? And what are the major causes of their deaths? In brief, the highest rates and least progress are among the newborn—infants under 4 weeks old; and among nonwhite babies. The highest rates are in our urban areas, particularly our metropolitan centers where there are high concentrations of poor families of all ethnic groups.

Two-thirds of all infant deaths under 1 year of age are due to the following conditions, in order of magnitude:

1. Postnatal asphyxia and atelectasis.
2. Congenital malformations.
3. Pneumonia.
4. Accidents.
5. Gastrointestinal infections.

Mr. Chairman, except for accidents and gastrointestinal infections, these major causes of infant death are largely in the realm of the unknown. We do not know why a newborn baby stops breathing, or why, on autopsy, we find that a baby's lungs have collapsed. We do not know very much about infant pneumonia, either; that diagnosis covers a wide range of respiratory conditions which may or may not be associated with the unknown causes of asphyxia and atelectasis, or with some other factors in the infant's environment.

The research programs of the Public Health Service at the National Institutes of Health and the Communicable Disease Center are continuously increasing medical knowledge of the factors contributing to infant mortality. The cooperative study of perinatal life now being sponsored by NIH, for example, is accumulating data related particularly to asphyxia in the newborn and congenital malformations. This study is certain to produce findings that will lead to the prevention of many infant deaths due to these causes. The Communicable Disease Center is conducting research and developing control measures affecting the infectious diseases of infancy, particularly infant diarrhea and hospital-acquired infections. Our accident prevention program also is cooperating in efforts to reduce the toll of accidental poisoning and home conflagrations which account for a large number of deaths among infants and young children.

We are aware that a much stronger and a better coordinated effort is needed in the scientific study of the biological processes and the medical problems involved in human reproduction and child development. As you know, the President has proposed a National Institute of Child Health and Human Development in our National Institutes of Health. We look forward to the greater opportunities we would have in those fields, should the Congress establish the new Institute. Meanwhile, work in this field is progressing through our Child Health Center which was established during the past year.

In the final analysis, however, Public Health Service activities affect only the periphery of the national effort for infant and child health. As you know, Mr. Chairman, the President has proposed a national immunization program in the Public Health Service which would assure protection against many of the common infectious diseases of childhood. I would remind you, however, that this much-needed activity would have no effect on that two-thirds of infant deaths due to the causes I have mentioned.

National and international mortality data are our best indexes of health conditions among all age groups. In considering mortality trends, the figures per se do not explain changes but they do alert us to possible problems of worldwide significance. The patterns of infant mortality that were observed in 1960 are now being observed in total death rates. After a period of rapid decline, there has been a leveling off of the adjusted death rate in the United States beginning in 1954. Similar deviations from the expected decline are being observed in other countries of low mortality, as well as in some countries of high mortality.

We expect temporary reversals in the downward mortality trend, but when the adjusted total death rate fails to move over a period of 7 years, 1954 to 1960, we begin to look for explanations. Our continuing analysis thus far shows that the age-specific death rates have been higher than expected in every age group from infancy to the middle years. At present we are exploring several possible explanations of this phenomenon.

CONCLUSION

In considering the warnings that our national mortality statistics are flashing, Mr. Chairman, I cannot fail to refer to one of the legislative proposals for health which this Congress is considering. The President has again urged action on the aid to health professions education bill. There is no question in my mind that future progress in national health depends most heavily on meeting the shortages of physicians, dentists, and public health specialists. The success of all other efforts depends primarily on the availability in all parts of the country of adequate numbers of well-qualified health personnel. Should this legislative proposal be enacted, we would seek amendments to our 1963 estimates to implement the new program.

At present, Mr. Chairman, I wish to bespeak the committee's favorable consideration of our 1963 estimates and to thank you gentlemen for your courteous reception of my statement.

RESERVE OF 1962 APPROPRIATIONS

Mr. Fogarty. I think this is a fine statement as far as it goes. I do not think it goes far enough for 1963. I imagine that is not your fault.

As you no doubt know, I have disagreed with the President, the Secretary, and the Bureau of the Budget on the reserves under the 1962 appropriation.

Dr. Terry. Yes, sir.

Mr. FOGARTY. I have read this excerpt to almost everyone who has come before us, including the Secretary. It is an excerpt from the President's statement of October 26 given to each Cabinet officer and agency head.

> I much prefer that obligational authority remain uncommitted where there is any doubt that expenditures would yield substantial returns to the national interest.

Is there any doubt in your mind that the investment we are making in the area of public health yields substantial returns to the national interest?

Dr. TERRY. There 's no question about it in my mind, sir.

Mr. FOGARTY. I seem to get that answer from almost everybody who comes up here. When these hearings are completed we will try to change the President's mind or the Secretary's mind to see if they will not release some of these reserves.

It has been brought to my attention that for the entire Department of Health, Education, and Welfare there is $55,398,000 in reserves. They took $50,773,000 out of the Public Health Service appropriations. That is hitting the Public Health Service pretty hard, is it not?

Dr. TERRY. Yes, sir; it is.

Mr. KELLY. I have some trouble with those figures, Mr. Chairman. The overall reduction, including anticipated savings, was $101,832,000.

Mr. FOGARTY. I am talking about the administrative reserve.

Mr. KELLY. Part was administrative reserve and part was under contingencies. In total it is $101 million, of which $76 million was in the Public Health Service.

Mr. FOGARTY. This is the table you submitted.

Mr. KELLY. That is right.

Mr. FOGARTY. What is the $55 million here for administrative reserves?

Mr. KELLY. That part of the $101,832,000 which had not been placed either in the apportionment reserve for savings or for contingencies.

Mr. FOGARTY. The figures I used are comparable.

Mr. KELLY. I think not. My figure is $101,832,000. The Public Health Service was $76,768,000.

Mr. FOGARTY. I am referring merely to those under the control of the Secretary. I'm talking about forced savings. You are including the reserves that would be set up in the normal course of events and I have no quarrel with them.

Mr. KELLY. I do not really distinguish them.

Mr. FOGARTY. I would not think you would in your position, but I do. We may have to try a little harder to convince you to convince the Secretary to release some of these funds. You are rather hard to convince.

PNEUMONIA

Doctor, you mentioned one of the causes of infant mortality being pneumonia. It seems to me I hear about more people every year who have cancer, heart trouble, or something else, who all at once get pneumonia and die. It seems I have heard about it more this past year, especially people who had had one or two or three operations.

Dr. TERRY. We do know, Mr. Chairman, that persons who have had other diseases recently where their defenses are lowered are more vulnerable to various sorts of infections.

I think you may be aware that over a long period of time the medical profession has commonly referred to pneumonia as the friend of the aged, for the simple reason that when people got very old the thing that took them was pneumonia.

In the past, particularly 20 years ago, for example, we were much more concerned about the bacterial pneumonias, the pneumococcal pneumonias, than other types because we saw so many people, including young people who were healthy otherwise, having acute pneumonias and dying very rapidly.

Time has gone along, and I think with our antibiotics we have learned to fight this particular type of pneumonia.

Then, after that began to be under control, other things raised their heads—for instance, staphylococci pneumonias for which we did not have satisfactory antibiotics, and more recently the role of viruses in the production of pneumonia has been a very important problem.

We are making progress on all of these. We are getting more effective antibiotics and learning which of the viruses cause pneumonias. We are hopeful that as we get these viruses characterized, if we do not have adequate methods of treatment, we can produce vacines to prevent some of them.

Mr. FOGARTY. It seems in most of the cases I have heard about they were in the hospital at the time. I mentioned this to two or three young doctors from Pennsylvania who were here yesterday morning and one of them said that that was right, that there was a rising incidence, and perhaps something should be done in hospital design, that there should be isolation of some of the wards. He seemed to think that the incidence of pneumonia is going up in hospitals and something should be done about it.

Dr. TERRY. I certainly would not discount the question that these things should be looked into more carefully than we have done thus far.

On the other hand, I would suspect that perhaps rather than there being a hospital-pneumonia cause-and-effect relationship we are more likely dealing with the fact that pneumonia is a common thing in people's lives. Most of our terminal events do occur today in hospitals.

Mr. FOGARTY. I refer to a lot of young people, also, not just old people.

Dr. TERRY. This would cause one to reflect much more seriously.

Mr. FOGARTY. I have a man in mind who has been through three or four major operations in the past several years. This is in one of the best hospitals in Boston.

He was apparently coming along fine after the last operation, and all at once he got pneumonia and died.

Dr. TERRY. You are well aware we have had problems with regard to infections, cross infections, and particularly with regard to staphylococcus in hospitals.

I think our very active campaign throughout the country which has been participated in by relatively all of the medical organizations, the Public Health Service, the AMA, and the American Hospital Association, has done a great deal to bring many of these infections under control and obviate some of the difficulties.

On the other hand, from what you say, I am not aware of this particular aspect. It would cause one to pause and reflect in terms of whether or not there might be a causal relationship

Mr. FOGARTY. It also seemed to me I have heard more about these cases in the past year than ever before.

Who has statistics on this in the Public Health Service? When they come before us I will inquire into it.

Dr. TERRY. The National Center for Health Statistics would have the data.

I shall be glad to have him check the information he has and submit it to you, Mr. Chairman.

FEASIBILITY OF AN INSTITUTE OF BIOENGINEERING

Mr. FOGARTY. What thought have you given to establishing an institute of bioengineering?

Dr. TERRY. Frankly I have not given the matter serious consideration. I know that this has been talked about.

Mr. FOGARTY. We have talked about it previously when Dr. Rusk came here. He recommended serious consideration be given to the establishment of this group.

Dr. TERRY. I have serious question as to whether it would be wise. My primary reason for saying this is that the place in bioengineering in the medical field is working with and giving supporting resources to other types of medical research, whether it is development of instruments for surgery or whether it is the development of a particular machine that will measure something faster and more accurately than has been done before.

I would think, rather than trying to concentrate all of this in one center, or even a large part of it in one center, such as an institute at the NIH, we would be better advised to have medical school university locations for several centers which could work closely with the existing engineering profession and the existing medical and research professions in already existing places.

Of course, they would have to implement both resources and personnel to come out with a good program, however you can hardly go into any research laboratory of any size in this country where there is not something of this sort going on because it is a natural part of the development of the tools with which the researcher has to work.

Under those circumstances, though frankly I want the NIH to continue to work in this field, as we have with the gastrometrograph, and the fluorospectrophotometer, and many other instruments, I think at the same time it is certainly well not to concentrate the vast majority of this developmental program in any one spot, in NIH or elsewhere.

Mr. FOGARTY. How would you carry out your proposal? What would have to be done?

Dr. TERRY. The only thing that would have to be done would be to have moneys available for the support of this sort of thing.

Mr. FOGARTY. Make $4 to $5 million available for this type of work and then let them go through the same process?

Dr. Terry. The same sort of application.

Dr. Shannon reminds me that we have in this budget in our resource centers item a concept with the possibility of developing this sort of thing.

Mr. Fogarty. We will develop that when we get to it, then.

Dr. Terry. Dr. Shannon will talk to that later, sir.

SAN FRANCISCO DENTAL HEALTH CENTER

Mr. Fogarty. You mentioned the fact that I was out to this new center at San Francisco. I think the Public Health Service should be commended for the manner in which they have transformed this surplus building into a very fine center.

Of course, it was almost completely a dental meeting, but everybody was afraid you will start parceling out space to others and there will be no room for dentists.

I thought we were preparing this building to do a real job in the area of dentistry.

I know the heart group was mentioned. I think the other group mentioned was the nurses. They don't take up much space but I think everybody was afraid the heart people gradually would take over this building and the dentists would find themselves out looking for space in 2 or 3 years.

From what I heard about it, I was inclined to agree with them.

Dr. Terry. I am aware the dental group would like to have the whole building, not that they need it now but they would like to have it for future use.

On the other hand, these are the sorts of decisions that I have to make when we need spots for several program activities and in this particular instance, in making this decision, I led myself to believe, and I hope I am correct in this, sir, that we could allot some of this space to other programs and get them underway without really doing any damage or delimiting the dental program.

Mr. Fogarty. My experience has been once these people get their foot in the door it is a difficult job to get them out. You have a lot of space in that hospital out there which could be used.

Dr. Terry. This is our major problem.

Mr. Fogarty. Much of the area is vacant or not being used to capacity, as I recall it. We went through the hospital. We thought perhaps plans could be made to take some of this space for the heart program and let the nurses and dentists have the old nurses' home as they have planned.

Dr. Terry. I would like to assure you that it is not my intention to delimit the usefulness and proper growth of this dental health group. I certainly want to give all the support I can both in terms of space and other things that are necessary for these people to carry out their program. I think it is very important.

HISTORY OF NURSES' HOME BUILDING

Mr. Fogarty. This place has been vacant for a long time.

Dr. Terry. That is right.

Mr. Fogarty. Nobody knew what to do with the place. It was discussed at meetings here with the Division of Hospitals. They never did come up with any real plan but it seems they didn't want to let go of it.

Then somebody comes up with a good idea and now everybody wants in.

Dr. LOWRY. I must rise to the defense of the Division of Hospitals, because it was their active initiative which sought use for this space. We solicited bids, so to speak, from all parts of the Service. It was only the dental group which actually came forward and asked for space. They were assigned to space for which they asked.

If I may go off the record a moment.

(Discussion held off the record.)

Mr. FOGARTY. I have not been able to find out yet how long that place was vacant.

Dr. LOWRY. It was vacant for a good many years.

Mr. FOGARTY. How many years?

Dr. LOWRY. I cannot tell you.

Mr. FOGARTY. That is the same answer I have gotten from everybody in the Service. I have asked it a good many times and I have always gotten the same answer.

Dr. LOWRY. I cannot tell you exactly.

Mr. KELLY. We put a report in the record last year, Mr. Chairman.

Mr. FOGARTY. Everybody I have ever asked has said it is 10 or 15 years, or something general like that. That is a long time. I think 10 years is a long time for something like that to stay vacant.

Dr. LOWRY. I will be glad to bring the actual square-foot figures on what space is in that building if you would like to have them.

Mr. FOGARTY. Everybody I talked to out there said that this has been vacant "ever since I have been here," no matter how many years they have been there.

Dr. LOWRY. I think that is correct. If it had not been——

Mr. FOGARTY. I think if this committee had not prodded you in hearings and in its reports, something would not have been done yet.

Dr. LOWRY. I think that was very helpful, but I think you know the reasons why the building was not utilized. It is the same reason the nurses' home at Detroit is not being utilized. We do not have the means to make it into an operating clinic.

Mr. FOGARTY. I thought this worked out pretty well. Everybody seemed to be satisfied with the way it was working out.

What happened to the nurses' home in Detroit?

Dr. LOWRY. It has been vacant for some time.

Mr. KELLY. It is in the report we gave you last year, which proposed a conversion of both of those buildings. I cannot recall exactly, but I believe it was to be converted into family housing but we have been unable to secure funds for that and it was utilized for the dental center and everybody is pleased with that.

Mr. FOGARTY. I think they will be pleased if they do not get run out.

Dr. TERRY. I can promise you they will not get run out.

PROPOSED CLINICAL RESEARCH ACTIVITY AT SAN FRANCISCO HOSPITAL

Mr. FOGARTY. You have a lot of space in the hospital.

Dr. LOWRY. We hope some day to make use of that space by having an opportunity to renovate it and start a clinical research activity there.

Mr. Fogarty. You are going to use the space for clinical research?

Dr. Lowry. I expect we will.

Mr. Fogarty. I think you are going to have more space available than your people out there admit to.

Dr. Lowry. Not in the hospital, Mr. Fogarty.

Mr. Fogarty. On the day we went through there was vacant space in the hospital. What plans have you made to renovate the vacant space in the hospital?

Mr. Kelly. We had a feasibility study made several years ago that we have not been able to proceed with, pending the final resolution of the future of the hospital system. There were plans for utilization of that and, as I recall, there was need for the space for clinical research. We may have had some argument with the survey as to how long that space should be allocated to that, but there was also a desire to rework the space for the outpatient area in order that they would have a greater number of consultation rooms and a greater provision for operating room space than was designed in the hospital. This tends to be a problem in all of the Public Health Service hospitals. They were not adequately designed originally for outpatients because that had originally been handled in a downtown clinic.

PLAGUE LABORATORY

Mr. Fogarty. What is being done about the plague laboratory out there; anything?

Dr. Terry. I am not sure of the details. Perhaps Dr. Bauer can answer that.

Mr. Fogarty. I took a walk through it, and I hope I do not have to do it again unless you get some air conditioning.

Dr. Bauer. At the present time, I know of no plans for renovating it. It is being used—actively.

Mr. Fogarty. How much would it take to put air conditioning in there?

Dr. Bauer. I could not answer that offhand, but I could find out.

Mr. Fogarty. Does it not smell bad?

Dr. Bauer. Yes, sir.

Mr. Fogarty. The air conditioning would not take much money, as I recall.

Dr. Bauer. I do not think so.

Mr. Fogarty. But it would help it a great deal, would it not?

Dr. Bauer. I am sure that with proper ventilation that would help.

Mr. Fogarty. You are going to keep it going?

Dr. Bauer. Yes, sir. We need to continue our surveillance of the plague out in the West.

Mr. Fogarty. Do you not agree that it is a real problem out there without ventilation?

Dr. Bauer. Yes. It was a laboratory we had for purposes of research, and we had to move quite a few animals in there, and it does not have the right ventilation.

SAN FRANCISCO NURSES HOME BUILDING

Mr. Fogarty. Getting back to the San Francisco nurses home building, in the report that you put in the record last year, Mr. Kelly, you do not tell us how long it was vacant.

Mr. **Kelly.** No date?

Mr. **Fogarty.** "More than 10 years," it says. I have not found anybody yet who could tell us.

Dr. **Lowry.** I will give you an answer Monday.

ASSIGNMENT OF SPACE

Mr. **Fogarty.** I hope we do not have to do anything to protect the dentists from being ousted from their quarters by someone who might have more appeal than they.

Dr. **Lowry.** Since all three of those programs are in Dr. Bauer's Bureau, maybe he can settle the little problem they have with each other.

Mr. **Fogarty.** We will ask Dr. Bauer when his part of the budget is before us, then. He will have a real good answer by that time, I suppose.

Dr. **Bauer.** I think I have an answer right now.

Mr. **Fogarty.** Go ahead, then.

Dr. **Bauer.** There are actually 10,000 square feet of space assigned to these three divisions—dental public health, nursing, and heart control programs—which was the original plan. It was pretty well worked out in their relationships to allow minor occupancy on the part of heart research and control and to the nurses. They occupy about 1,000 feet of the 10,000 square feet available. The dentists under their projection will not use up the space assigned to them for the next year or two.

Mr. **Fogarty.** How do you know? If we give them some money, they could. We are trying to help dentistry. This is a new program. They have been kind of walked over by a lot of people and not helped much by the other medical professions. We want to make sure that they are not the orphan in this thing.

Dr. **Bauer.** I can assure you that if the dentists need more space in these quarters, from the heart and nursing personnel, we will work this out.

REORGANIZATION OF THE PUBLIC HEALTH SERVICE

Mr. **Fogarty.** Dr. Terry, you have been in office about a year?

Dr. **Terry.** About a year, sir.

Mr. **Fogarty.** What have you done by way of reorganizing the Public Health Service?

Dr. **Terry.** We have taken quite a few steps in the direction of at least functional alinement and rearrangement. I think you are aware of the task force that reported over a year ago in terms of definition of functions.

Mr. **Fogarty.** You are talking about the study group on mission and organization?

Dr. **Terry.** Yes, sir. Actually, most of the recommendations of that group have been carried out. Most of those certainly——

Mr. **Fogarty.** Did you agree with most of them?

Dr. **Terry.** Yes, sir.

NEED FOR LEGISLATIVE AUTHORITY

Most of them have been carried out except a few for which we need legislative authorization, such as the abolition of the Bureau of State Services and the creation of two new bureaus in its place.

Mr. FOGARTY. What are the two?

Dr. TERRY. The Bureau of Environmental Health and the Bureau of Community Health.

Mr. FOGARTY. Do we have to establish the Environmental Health Bureau through legislation?

Dr. TERRY. Yes, sir; through legislation—to abolish an existing bureau or to establish a new bureau.

Mr. FOGARTY. You can build a center without additional legislation?

Dr. TERRY. Yes, sir.

Mr. FOGARTY. Do you anticipate any trouble in getting the legislation?

Dr. TERRY. I do not feel that it is controversial to any appreciable extent.

Mr. FOGARTY. Not as much as last year, anyway?

Dr. TERRY. Mr. Chairman, I think that I can assure you that with the functional organizations we have now that we are moving right ahead with our programs. I do not think we are suffering seriously.

FUNDS REQUESTED FOR ENVIRONMENTAL HEALTH CENTER

Mr. FOGARTY. How much money are you asking the Bureau of the Budget for the Environmental Health Center?

What would this initial request be, to buy the land and draw the plans?

Dr. TERRY. $2 million for site acquisition and early planning in addition to the $785,000 which we had appropriated to use originally when we were thinking of developing it in the Cincinnati area. That fund was not used. It makes a total of $2,785,000.

Mr. KELLY. That is the estimate. The President's budget contains a crude estimate of $2 million. The amount we will need will depend upon their final site selection and the price per acre. If it is $3,000 per acre, as I recall the figure, it could come out to an additional fund requirement of $2,760,000.

Mr. FOGARTY. I just wanted to get an idea of it. Then if it comes to this committee, we will ask more questions about it.

Dr. TERRY. All right, sir.

OTHER RECOMMENDATIONS REQUIRING LEGISLATION

Mr. FOGARTY. How many other recommendations in connection with the reorganization of your service are held up because of lack of legislation?

NATIONAL LIBRARY OF MEDICINE

Dr. TERRY. One particular thing we do need is legislation for an extramural program for the National Library of Medicine. We feel that this group is in a position at the present time to do a great deal in terms of library and information development. If we had programs of an extramural nature, allowing project grants and other types of grants, and so forth——

Mr. **Fogarty**. What is the situation with regard to the libraries in medical schools? Are they being kept up to date?

Dr. **Terry**. No.

Mr. **Fogarty**. Do they need help?

Dr. **Terry**. It varies tremendously. Generally speaking, one can say that the libraries in most of our medical schools are low man on the totem pole.

Mr. **Fogarty**. It is true in nonmedical schools, too. We are trying to do something about that.

Dr. **Terry**. I certainly hope we are able to, sir.

Mr. **Fogarty**. Do you have any recommendations along this line?

Mr. **Kelly**. I think legislation on assistance to the medical and dental and osteopathic professions would be of material assistance, both in construction of facilities and support of operations.

SALARY STRUCTURE

Mr. **Fogarty**. Tell us about the studies that have been made during the past few months concerning your salary structure and other matters involving the Public Health Service.

Dr. **Terry**. If I may, I would like to give you first just a little background on it, Mr. Chairman.

Mr. **Fogarty**. This is one of your real problems?

Dr. **Terry**. It is certainly one of our real problems.

As a matter of fact, when I came into office last year, it was a matter to which I gave highest priority. We discussed it to a great extent in our own staff, and over the preceding year or year and a half, each of the bureaus in the Public Health Service has made studies within its area in trying to define its problems and hopefully to make suggestions that might help. We had this material available. It was not pulled together, and as we began to look at the material we had, it was quite obvious that if we got support for many of the things for the direction in which we thought we ought to go, we needed broad support. We needed unprejudiced evaluation of these needs and recommendations.

Dr. Shannon and I, early last year, after I came into office, went to see the Secretary after we had talked it over at the staff level. We described to him the problem as we saw it in relation to our personnel and requested his support.

The Secretary indicated he was not only willing but anxious to do anything that he could. Subsequently we had discussions with Mr. Macy of the Civil Service Commission, the President's science adviser, Dr. Jerome Wiesner, and with many other people interested in the Public Health Service.

ADVISORY COMMITTEE TO STUDY PERSONNEL

Finally, we came up with a recommendation that we needed an independent study which could be done by a highly qualified outside group supported by a good staff from inside the Public Health Service, the Department, the Civil Service Commission, and other areas which would work up the material in accordance with the desires of the group.

Accordingly, we asked the Secretary, or I asked the Secretary, that this committee be appointed and with him we worked out the membership of this committee.

As I am well aware, because it has beaten me over the head many times in the past year, the fact that the Secretary announced the appointment of this committee to study the personnel of the Public Health Service was misinterpreted by many people and also by some of our journalists in the city.

Some of them used it in saying that this was the Secretary cracking down on the Public Health Service.

I can assure you, Mr. Chairman, that this was a move which was initiated within the Public Health Service and carried to the Secretary by me and my colleagues.

The Secretary has given us complete cooperation on it. He actually extended the invitation to the members of this committee on the basis of the fact that we wanted these persons being invited to participate in a study of the Public Health Service to know that they had the support of the Secretary and the Department.

Second, we were asking some very, very important and busy men to serve on this committee. We felt that it added prestige in having the Secretary invite them and this would be important. It was for that reason it was done.

The study is underway at the present time and we have had a good-sized staff supporting them over the past few months and we hope that we may have a report from this committee within the next month.

Mr. Fogarty. The committee is headed by whom?

Dr. Terry. This is a committee headed by Marion Folsom, the former Secretary.

Mr. Fogarty. I thought that was an excellent selection. I talked to him last week when he was in Washington. He knows that there is a job to be done there and I think he will turn out to be a real good man for the job.

ADVISORY COMMITTEE REPORT

When will this committee expect its report?

Dr. Terry. We expect to have its report within a month.

Mr. Fogarty. From now?

Dr. Terry. Yes, sir.

Mr. Fogarty. Then what are you going to do?

Dr. Terry. I do not know. It depends on what the committee report involves. If it involves legislation we have to evaluate that from the standpoint of practical application.

Mr. Fogarty. But you are not going to waste time with it? You are going to do something about it, are you?

Dr. Terry. We are trying to do something. I have not wanted to waste any time and we are moving ahead as fast as we can.

Mr. Fogarty. You do not have any idea what the results of this study are going to be?

Dr. Terry. Without being unfair to the committee, I can make some generalizations after discussions with the committee and the staff working with them.

I think basically the committee feels that there should not be any sharp break or major change in terms of the personnel systems that we have in the Public Health Service. In other words, it is my understanding that they have no consideration of recommending the abolition of the commissioned corps or completely shifting the civil service and commissioned corps over to an independent, new type of system. It is my impression that they feel there are certain portions of our personnel that need special attention in terms of compensation. One of the things we need to do very much is to build up a much stronger personnel system than we have in the Public Health Service at the present time. Those are generalizations which I believe are the sum and substance of the committee's thinking.

GROSS REPORT

Mr. FOGARTY. I think you received the so-called Gross report on the last day of November. Do you agree with the conclusions reached in this report?

Dr. TERRY. Yes, sir; in general, I am in agreement. We received the report on November 1 and I think it is an outstanding job.

Mr. FOGARTY. Do you want briefly to summarize what you feel to be the most important recommendations contained in that report, or do you prefer to leave that to the people who are going to justify this particular item?

Dr. TERRY. I do not mind making some comments about it. I am afraid I might not be adequate in doing it and if I may I would like to have Dr. Anderson give you more detail.

Mr. FOGARTY. When they come before us we will get into that in more detail.

Dr. TERRY. I think one of the important things we got from this, without trying to cover everything, is to emphasize to all of us who have evaluated the report the need for greater training of qualified personnel in this area; not only that but training within our own programs and the utilization of existing potential in the universities to help us train people in such areas as, for example, radiological health.

The other thing that I think that was terribly important was their support of us in terms of the previous recommendations we made of locating an environmental health center in the Washington area. I think this is terribly important.

Those are the general things that we can go into more specifically later.

SYPHILIS ERADICATION

Mr. FOGARTY. Last year, Mr. Marshall took a great deal of interest in the problems of venereal disease and practically directed you to bring us a plan for the eradication of syphilis in the country. Do you have such a plan?

Dr. TERRY. I think we have at least the blueprint of such a program in the recommendations of Dr. Baumgartner's committee. I think it points a way.

It is a problem of putting much effort on it but we are willing and anxious to tackle it and I believe, Mr. Marshall and Mr. Chairman, that this is a sound approach.

Mr. FOGARTY. Do you think the modest increase you have in the 1963 request is in accordance with the recommendations of this blueprint?

Dr. TERRY. Mr. Chairman, I think you ought to appreciate those recommendations were made by us and accepted by the Department and the administration before we had the advantage of the results of this report.

Mr. FOGARTY. Tell us how much you need to carry out the recommended program.

Mr. KELLY. May I say, Mr. Chairman, that the Secretary requested that, as a result of the report, we obtain from the Public Health Service an estimate of what it would take in the first year to carry out its recommendations, and the extent to which the million dollars would, or would not, suffice for this purpose. This has just been requested of them, I think, yesterday.

Mr. FOGARTY. I hope that when they appear before us they will be able to tell the committee what the plan is, whoever is going to justify the venereal disease program.

Dr. TERRY. Yes, sir.

Mr. FOGARTY. Would that be in the form of a supplemental or amendment?

Mr. KELLY. He has requested them to prepare the information.

Mr. FOGARTY. That should not take very long.

Mr. DORAN. It will not take long.

COMPARATIVE HEALTH OF AMERICANS

Mr. FOGARTY. The head of Harvard University's Department of Preventive Medicine recently said:

> The health of Americans is far from being the best in the world * * *. In fact, the health of American men ranks 13th in the world and our women rank 7th.

This is from a newspaper clipping.

Dr. TERRY. Who is this?

Mr. FOGARTY. Dr. David D. Rutstein.

Dr. TERRY. I do not know whether that is correct or not, sir.

Mr. FOGARTY. The clipping goes on to say:

> Ahead of American men are the men of Norway, the Netherlands, Sweden, Israel, Denmark, New Zealand, England, Wales, Canada, North Ireland, Czechoslovakia, Austria, and West Germany, in that order.

Dr. TERRY. I am not sure what he means by that.

Mr. FOGARTY (reading):

> Our women are topped by those of Norway, Sweden, The Netherlands, Wales, Canada, and Australia, in that order.

Dr. TERRY. I am not sure what he means by "topped" by them and what is the method of arriving at it?

Mr. FOGARTY. If that is so, we cannot brag too much about what we are doing in this country, can we?

Dr. TERRY. I think we have a lot of things to brag about. I think we are doing a lot and maybe we have some bigger problems than they do in many respects, and in certain areas, but I am not apologetic for the progress we are making.

Mr. FOGARTY. We are not making enough progress if these figures are correct. That is not very good.

Dr. TERRY. It is not as good as I would like to see it.

Mr. FOGARTY. Not as good as I would like to see it. I think we ought to be first. Do you have any overall plans that would get us into first place?

Dr. TERRY. Yes, sir.

RESERVE OF APPROPRIATIONS FOR 1962

Mr. FOGARTY. If you get hit with reserves every year or two when somebody decides we appropriated more money than you need, we will be behind further than that, in my opinion. How can you make progress when you have your funds taken away from you?

It is going to prevent the carrying out of many of these programs that Congress appropriated funds for. That is going backward, I think. That is not progress, is it?

Dr. TERRY. It is progress in a sense. It is not as much as——

Mr. FOGARTY. In a sense? If it was 5 cents over last year, you could say it was progress I suppose, but I would not agree with you.

Do you not think you could have wisely spent the money we gave you last year?

Dr. TERRY. I think we could have spent most of it, sir. I am not sure that we could have spent it all, because we would feel that if we did spend it we would have to spend it wisely, Mr. Chairman.

Mr. FOGARTY. As I understand it, this $50 million is forced savings in your Service. Do you mean to tell me that you would not be able to spend all of that?

Mr. KELLY. I think that when the Surgeon General said "most of it" he was referring to a larger figure. I think what he referred to when he said "most of it" was all of the $50 million you are referring to, Mr. Chairman.

Dr. TERRY. I was referring to the larger figure of $76 million for the Public Health Service.

Mr. FOGARTY. But the actual forced savings comes to $50,773,000 and that is the figure I am speaking of.

Dr. TERRY. I was not speaking of that. I think we could have spent all of that wisely.

Mr. FOGARTY. You think you could have wisely spent more?

Dr. TERRY. Possibly so; yes.

Mr. FOGARTY. I happen to agree with you.

When you have $50 million taken away from you, I do not think that is progress. I think that is going the other way.

It seems to run contrary to what the President said when he stated:

> I much prefer that obligational authority remain uncommitted where there is any doubt that expenditures would yield substantial returns to the national interests.

I do not know of any place in the Government where expenditure of public funds yields more substantial returns to the national interest than in the Public Health Service.

That was not your decision. I am not blaming you, but those who made the decision. That was above you.

INFANT MORTALITY

Do you wish to add anything to what you had in the prepared statement regarding infant mortality? Is there anything that we can do as a committee to help?

Dr. Terry. At the moment, Mr. Chairman, I would not have specific suggestions. As I pointed out to you in the opening statement, there are many areas of the Public Health Service involved in this, as well as other agencies and departments. We have specifically suggested, and the President has recommended, the vaccination program, particularly in smaller children. I think this is one thing that we would like very much to have, but, as I indicated also, this at most will touch but about one-third. We have many things going and I think our perinatal study in terms of cooperative effort and the manner in which it is being done is very exciting.

I think it is allowing us to accumulate information in the most rapid manner instead of waiting for one laboratory or one group to accumulate all of the information in a year or over the years. I think by having this sort of cooperative study set up, we are accumulating information very rapidly. I personally feel—although this matter has not come to you at this time—I would personally like to see approval for a National Institute of Child and Human Health. I think this would help us a great deal in focusing on the problems, both of children and of the aging.

Mr. Fogarty. That may turn out to be a controversial piece of legislation?

Dr. Terry. I am hoping not.

Mr. Fogarty. I would not bank on it, if I were you.

Is there anything else you can think of that this committee could do to help you in this area?

Dr. Terry. I think that, in general, the proposals which we have in our budget this year and with the additional things we hope to get, that you would give us the support that we would need.

PROFESSIONAL JUDGMENT ESTIMATES OF FUND NEEDS

Mr. Fogarty. Of course, I am going to try to dig out of some of your people, when they come before us, what they honestly think they can use to advantage in all of these programs. I hope that you will tell them when they are asked to give us their best professional judgment as to what they think ought to be done in the coming fiscal year, regardless of fiscal problems.

Dr. Terry. There will certainly be no reason on my part to try to prevent their giving you their best professional judgment.

Mr. Fogarty. We will ask their best professional judgment. I hope that they can be honest with the committee and not feel embarrassed. I know the problems they face when they get orders to come here and justify the budget and nothing else.

I have been saying this same thing for 16 years now through all administrations. We expect, when they have been presented with a direct question, that they will give us a direct, honest answer as to what they believe ought to be appropriated for the coming year, regardless of the budget that is before us.

Sometimes there is great difficulty; some people squirm on the witness chair and get red in the face because of the orders they have been given by people in the Bureau of the Budget, or some other place. They should be comfortable when they come before this committee. All I am trying to do is to help them by seeing that they have the funds that are necessary to run good programs.

Dr. Terry. I know that and I think that they will give you their best judgment when asked by you in that way.

Mr. Fogarty. We had a very excellent hearing this morning and yesterday and we got most of the information we wanted.

Dr. Terry. As I recall from the record from last year's hearings, I think you have gotten the information you have wanted.

Mr. Fogarty. Yes, we did, but I did not know what was going to happen to some of them when they got back. I remember very distinctly one time when Dr. Haldeman was answering questions as honestly as he knew how, questions that I was asking him about his program, and the present Governor of New York, who was Under Secretary then, did an awful job on him at noontime. I heard about it and I did the best job I could on the present Governor of New York when he came back. I let him know in no uncertain terms that when these people are asked questions, they are expected to answer, and we did not expect anyone to be punished for it.

I do not like professional people to be told by nonprofessional people, who do not know much about the problem, what they ought to say before a congressional committee.

Perhaps I have talked more than I should about this, but I do not want to see anybody hurt later. That is my philosophy and it has been for 16 years.

I expect that they will give honest answers to any questions we ask. I am sure you would not attempt to tell anybody in the Public Health Service to do otherwise.

Dr. Terry. I certainly shall not. I think you realize that we come up here with the budget proposals which we feel are the best balanced and the best that we can get within——

Mr. Fogarty. It is the best deal that you can make, but it may not be the best budget. It is the best budget that you can get under the conditions.

Mr. Kelly, were you trying to get into this conversation?

Mr. Kelly. I would like to assure the committee that it is not the Department's policy to prevent witnesses from fully and frankly answering any questions the committee puts to them. On the contrary, the Department encourages witnesses to be candid, honest, and helpful to the committee in response to any inquiry of the committee.

I would like to differentiate, however, between the Department's policy as it relates to the responsibilities of witnesses in the presentation of their testimony in explanation of the budget and their responsibility for responding to questions of the committee.

The budget estimates for the Department represent the recommendations to the Congress of the President of the United States. The witnesses of the Department who appear before you are privileged to represent the President and explain what can be accomplished with the funds recommended by the President, how they plan to apply these funds, the purposes to be served, and the accomplishments anticipated. This presentation should be straightforward, clear, and concise, and while it should point out what the funds are designed to accomplish rather than what is not provided for, it should not in any sense be presented in a manner designed to mislead the committee.

On the other hand, witnesses are instructed that they are not to volunteer to the committee their personal views, they are not to try and show what they can't do, and they are not to request appropriations in excess of the budget estimate. This instruction is in accord with the law which prohibits any person in the executive branch, except the President, from requesting appropriations. Witnesses are free to assist the committee in its deliberation on the budget by responding to any questions put to them, to the best of their abilities. It is suggested that they make clear that such answers are their personal opinions and arrived at from a different vantage point than are the views of the President.

Mr. FOGARTY. Well, that was quite a speech. I guess this subject is pretty well covered by both sides now.

HEPATITIS

Dr. Terry, I understand that there were around 70,000 or 75,000 cases of hepatitis in this country last year, which was an alltime record.

What are you doing about this?

Dr. TERRY. There are many things we are doing.

Mr. Chairman, one of the big problems with hepatitis is the problem of isolating and identifying the agent responsible. There is much research going on supported by the Public Health Service in terms of trying to get further isolation.

Just recently we felt quite certain that the virus responsible for hepatitis had been isolated and grown in a culture medium.

Mr. FOGARTY. Most of it in polluted waters?

Dr. TERRY. Water is one method of transmission and this is one of the things we do not know. I think we have many things to learn about all of the methods of transmission. About the only direct evidence that we have, generally speaking, is the possibility of personal contact or association.

Personal contact does not mean it has to be physical contact. There is also transmission through water, transmission through certain uncooked foods, such as shellfish, oysters, and clams, which have been raised in polluted or contaminated waters.

We have a very active program going on in relation to our shellfish program as well as our water program in terms of preventing the recurrence of these happenings where shellfish are harvested in contaminated waters and sold to the public.

There is a lot we do not know. For instance, we do know that if you take an oyster or a clam and certain bacteria get into this particular shellfish and then that creature is placed in clean water, over a period of a few days to a few weeks he cleans himself up completely. In other words, he sheds these bacteria.

On the other hand, we do not know what happens with regard to viruses when they get into these creatures. One of the practices that has been carried out in the industry has been to take shellfish and put them in a clean area for a certain period of time with the supposition they would clean themselves if they happened to be contaminated, and then harvest them for consumption.

Frankly, we do not know whether this is an adequate concept, whether it is a correct concept in relation to the viruses when they get into the shellfish.

Some of the things we have to learn are to identify the virus which is responsible, learn whether vaccines can be produced, and learn more about how this is transmitted from person to person.

Mr. FOGARTY. One thing that bothered me was pointed up by a clipping I got from the Washington Post on January 4 of this year.

HEPATITIS IN WEST VIRGINIA

The headline is this:

> NO END SEEN TO EPIDEMIC OF HEPATITIS
>
> CHARLESTON, W. VA., January 3.—State Health Director N. H. Dyer could see today no valid reason to assume that an infectious hepatitis epidemic which has hit West Virginia for more than a year is on the decline * * *.

Do you know anything about that problem in West Virginia?

Dr. TERRY. Yes, sir.

I know something about it in general but I do not know the specific details. It is not a picture different from what we have had in many areas of the country. This has extended from coast to coast.

Mr. FOGARTY. They had 1,610 cases in 1961 as against 906 in 1960.

Dr. TERRY. Yes, sir. This is the highest year we have had since 1954.

Mr. FOGARTY. Is that true all over the country?

Dr. TERRY. There are areas or regions where it is true in many places throughout the country. I do not say it is true in every State.

Mr. FOGARTY. Was not the figure for 1961 higher than 1954?

Dr. TERRY. Yes, sir, much higher.

Mr. FOGARTY. This is the highest ever?

Dr. TERRY. The second previous high was 1954.

I think the number of reported cases this year is almost twice that of 1954.

POLIO VACCINE

Mr. FOGARTY. We have been reading a lot in the newspapers about live polio vaccine and the development of a measles vaccine.

Would you care to comment on that?

Dr. TERRY. Yes, sir.

As you are well aware, we have licensed types 1 and 2 oral polio vaccine. We have not yet licensed type 3 nor will we until we feel that we have a complete oral vaccine because, in another sense, one should think of the polio vaccine as being a three-part vaccine, consisting of each of the three types.

There have been problems in terms of the type 3 virus in certain testing and until we can be absolutely certain that this virus does not have any virulence in multiple passage, we do not expect to release the type 3 vaccine.

However, I understand from Dr. Murray that things are hopeful and we are working in that direction and we are still hopeful that we may have a type 3 vaccine, let us say, by this spring.

SAFETY OF ORAL VACCINE

Mr. FOGARTY. What about this problem some people were concerned about with "hand-me-down polio"?

Do you remember reading about that?

Dr. TERRY. I did not understand.

Mr. FOGARTY. The headline on this story is:

HAND-ME-DOWN POLIO, A THREAT TO PARENTS

> Parents should take oral polio vaccine when their children do, to counter the risk of a doublecross by hand-me-down polio viruses, an expert warned yesterday.

This Associated Press article appeared in the New York Herald Tribune on November 15, 1961.

Is there any problem there?

Dr. TERRY. I am not sure how big a problem it is. We know that actually when a live polio virus is given to a member of the household that frequently it does pass to other members of the household. As a matter of fact, we depended on this to some extent in areas where we used it to combat epidemics to get protection to the other people, other than the ones directly given the vaccine.

Insofar as I am aware, there is not any danger as long as it is a tame virus that is going to stay tame.

On the other hand, Dr. Shannon may like to comment beyond that.

Dr. SHANNON. Mr. Fogarty, there is no evidence that the two are different in live form. The type of stability that would permit them to revert to a neurovirulence that would put a parent in jeopardy——

Mr. FOGARTY. I think he was talking about some mass immunization program in Berlin.

Dr. SHANNON. As the Surgeon General said, when you use a live virus, the advantage is that this immunizes the person against immediate contact and you get a much broader community of coverage.

One of the problems with labili viruses, which can change their characteristics, the so-called attenuated viruses, is that it can be converted back to a neurovirulent virus which you would inject at the initiation of an epidemic.

The two types used extensively now are licensed types 1 and 2 and we are quite certain that this is not even a remote possibility.

Mr. FOGARTY. Doctor, about 6 months ago Dr. Salk predicted that some day we would be able to control all viruses. Is this a possibility in the foreseeable future?

Dr. TERRY. Not in the immediate future, sir. I think this is an idealistic attitude. Maybe it is correct and it may be attained much sooner than I can anticipate but I cannot expect it within the next few years.

COMMUNICATING RESEARCH RESULTS

Mr. FOGARTY. What do you think of the problem of communicating results of research to doctors?

Are we calling a conference on that?

Dr. TERRY. We have not definitely planned the conference yet. We are discussing it.

Mr. FOGARTY. This is still under discussion?

Dr. TERRY. Under consideration.

Mr. FOGARTY. The big problem is in getting results into the hands of doctors?

Dr. Terry. Yes, sir.

It is certainly one of the most complicated problems we have in terms of the many levels and areas and persons involved in many systems of communication.

Mr. Fogarty. Do you have any other plans to get on top of this problem of communications?

Dr. Terry. We have quite a few plans in terms of further development of our educational training information programs. For instance, I mentioned in connection with the National Library of Medicine our hopes to get authorization there for an extramural program, and beyond that, it is hard to be specific at the moment.

Mr. Fogarty. When Dr. Shannon is before us, I will ask him. If you want to enlarge on your answer later for the record, do so.

Dr. Terry. I do not think there is anything I would like to say further.

FLUORIDATION OF MUNICIPAL WATER SUPPLIES

Mr. Fogarty. I noticed from some of the material submitted to our committee that we are falling behind in the fluoridation of municipal water supplies.

Dr. Terry. We certainly are not making any progress or adequate progress. For instance, we are very concerned that this past year in referendums which have been referred to the public on this as to whether they institute fluoridation or not, about two-thirds of them were defeated. We feel that over the more than 20 years that the Public Health Service has had this matter under study, and the 10 years in which we have recommended, or over 10 years we have recommended fluoridation of water, all of the evidence indicates it is a safe and reliable method of cutting down on the incidence of dental caries.

In many instances, it has become a matter of emotional rather than scientific consideration and under those circumstances often the proposal when presented to the general public has been defeated in elections.

We feel that there is a lot more we need to know about how to present such health problems to the public in order that we could get the information across to them and do it in such a way that they would understand and be convinced.

We expect to pursue this actively in terms of learning better ways of disseminating the information that we have on hand, as well as learning more about how to get such health programs over to the public.

Mr. Fogarty. No one in the Federal Government has a real promotional program of any kind. We never have done much of a job in this area.

Dr. Terry. It has certainly not been a strong promotional program.

Mr. Fogarty. Has any information ever been developed to show that this was in any way harmful to human beings?

Dr. Terry. We do not feel so, not in any concentration even close to the concentrations recommended in drinking water.

APPROVAL PROCESS FOR RESEARCH AND TRAINING APPLICATIONS

Mr. Fogarty. During the last few years, several new research and training programs have been added.

I think the committee understands pretty well how the applications for the NIH grants are processed, but would you tell us the method used to process applications under other programs?

Dr. Terry. You are speaking of methods of processing grants in our environmental health areas?

Mr. Fogarty. Yes.

Dr. Terry. In general, the processing is similar to the NIH.

As a matter of fact, in processing most of the applications for research grants, we utilize the existing mechanism at the NIH in terms of the study for the preliminary scientific review. Then, in environmental health, the National Advisory Health Council serves as the constituted Council which is authorized to approve these grants.

The training grants and similar grants are similarly handled, both grants and traineeships.

This sort of thing is similarly handled utilizing wherever possible the structure of the NIH, but utilizing our National Advisory Health Council as the approving council.

Mr. Fogarty. In all of these areas, you have a council that approves the applications?

Dr. Terry. This is not quite completely true. For instance, in some of our community health grants, project grants for individual projects, these are made without Council approval on the basis of a committee or staff which has been set up to review these proposals.

Mr. Fogarty. You mean your employees do the reviewing?

Dr. Terry. Yes, sir.

For instance, community service facilities in a particular area.

Dr. Bauer is here and he, perhaps, can speak to that.

Dr. Bauer. Actually these are special project grants for studies and evaluations and demonstrations and improvement in hospital services.

They are applications that originate in the field and they come into the Bureau. They are reviewed by an overall committee that consists of the Associate Chief of the Bureau and the Division Chief and on their recommendations approved.

However, there is an overall ad hoc advisory committee for the whole action and it is on their suggestion that they evaluate the total progress of the program from time to time.

This ad hoc committee is made up of outside people and they would evaluate the overall progress but not the individual project.

DESCRIPTION OF RESEARCH AND TRAINING GRANT PROGRAMS

Mr. Fogarty. We asked that you prepare a statement on each of your grant programs. We will put them in the record at this point, except for the NIH programs which will be placed in the record when we get to Dr. Shannon's overall statement.

(The material referred to follows:)

ACCIDENT PREVENTION

Research grants in the area of accident prevention were separately identified in 1961. They were previously funded by the Division of General Medical Services and the National Institute of Mental Health, NIH.

The first accident prevention research grant was made in 1951, the second in 1954, and the third in 1956. Since then the number of applications and approvals has shown a steady increase, as shown in the obligation table below:

Accident prevention research grants

Fiscal year:	*Amount*
1959	$773, 000
1960	1, 232, 000
1961	1, 236, 000
1962	1, 827, 000
1963 (President's budget)	1, 828, 000

As an example of the accomplishments of previous grants, the automotive crash injury research project, Cornell University (1956–62), was partially financed by PHS grant funds. This study has already produced several automotive safety recommendations based on their crash injury research: Padded dashboards, collapsible steering wheels, improved door latches, and the basic data on the desirability of seat belts.

The researchers supported by accident prevention grants have published 31 papers on traffic accidents, 10 on family accidents, and 9 on results of impact and protective devices.

The number of researchers entering this area of study continues to increase and the quality of applications continues to improve. Many areas of accidents offer fruitful fields of investigation because so large a proportion of accidents are due to human factors. Further research should continue to provide findings which will have specific applications in reducing the number and severity of accidents.

AIR POLLUTION PROGRAM

RESEARCH GRANTS

The Public Health Service has supported air pollution research grant since fiscal year 1956. From 1956 through 1961, support for such grants was obtained from both air pollution program funds and from the National Institutes of Health. In 1962, the air pollution research grant funding was consolidated in the Division of Air Pollution.

These grants fall into several areas of air pollution research. Among them are studies on epidemiology, respiratory and pulmonary diseases, auto exhaust, and airborne allergens. Meteorology, basic and applied chemistry, techniques for the analysis and identification of air pollutants, and development of control devices are also among the research areas supported. The present research grant program of the Division appears to be fairly well balanced and broad enough in scope to support research in the biomedical and physical science and engineering aspects of air pollution. In these areas, a stepped-up effort is indicated. High quality research proposals are available for this purpose.

TRAINING GRANTS

The Division of Air Pollution has been supporting graduate-level technical training activities since fiscal year 1957, at a modest level. In 1962 training grants to eight schools of engineering and public health are supporting graduate teaching in physical, biological, and engineering problems of air pollution. The remaining training grant funds are being used to support graduate-level training of individual trainees.

There is a large deficiency in the supply of trained technical air pollution personnel needed for both research and regulatory control activities. The training grant funds requested for 1963 are designed to initiate strengthening of the training effort so that this manpower shortage may be eased. It is necessary that the specialized technical competencies which are called for in the task of comprehending and controlling air pollution be added to the instruction now offered in the pertinent basic biomedical, physical, engineering, and social sciences.

Obligations

Fiscal year	Research grants	Training grants
1959	(1)	$92, 360
1960	(1)	88, 586
1961	$1, 766, 171	122, 343
1962	1, 855, 000	113, 000
1963	2, 723, 000	450, 000

(1) National Institutes of Health.

MILK, FOOD, INTERSTATE, AND COMMUNITY SANITATION

Although funds for support of extramural research appeared for the first time in the 1962 budget, support of research grants in this area of environmental health has been provided by the Public Health Service for a longer period of time. The first grant of this nature was made in 1947. Since that time, there was slow growth in the amount of research supported for about 10 years, followed by rapid growth until the present date. The obligations from 1961 through 1963 are shown below:

Research grants

Fiscal year:	*Amount*
1961	$2, 435, 768
1962	3, 147, 000
1963	3, 979, 000

Prior to 1962, grants relating to this appropriation were supported by the National Institutes of Health, primarily the Division of General Medical Sciences and the Institute of Allergy and Infectious Diseases. There is a sharp increase in research from 1960 to date which may be attributed to (1) increased interest on the part of the research community in environmental health problems, and (2) emergence of new and challenging problems as the result of technological change. This growth is indicative of the success of the program of bringing more trained minds to bear on problems in environmental engineering and food protection. The response of the research community is reflected in the number and quality of applications being submitted.

At present, grants are supporting research in several important problem areas including (1) the microbiology of convenience-type frozen foods in which investigators are studying the factors affecting the isolation and identification of both indicator and pathogenic microorganisms so that better information will be available for the drafting and application of standards; (2) disposal of solid wastes from standpoints of practicability and perhaps more important, the effects of disposal practices on the environment, i.e., contamination of ground water; (3) identification and toxicological evaluation of endogenous and adventitious substances in foods; and (4) ecological relationships in shellfish-growing waters, with particular reference to the bacterial contamination and paralytic shellfish poisoning problems.

Analysis of the present program reveals substantial needs for amplification of research in the above-cited areas but even more important is the need to develop programs in other areas where present coverage is grossly inadequate. Future plans call for intensification of effort to implement research on the assessment of the effects of environmental stresses such as noise, light, heat, and vibration on the health of man; evaluation of new process principles for foods with particular reference to food safety and nutritional quality; basic and applied studies of the physiological and sociological requirements for housing and other occupied space; and the administration of environmental engineering and food protection programs by State and local health agencies.

OCCUPATIONAL HEALTH

From 1947 until 1961, research grants in the field of occupational health were administered and financed by the National Institutes of Health and often were not clearly identified as being occupationally oriented. The history of a defined occupational health grants program dates to July 1, 1961, when all active research projects which were mutually agreed upon as dealing with occupational health problems were transferred to the Division of Occupational Health of the Bureau of State Services. A total of 49 grants with obligations of $1,030,066 was transferred.

An office with a minimum staff was established in the Office of the Division Chief to administer this new program. A program plan is being developed which will give emphasis to a variety of approaches to the acquisition of new knowledge relative to health problems resulting from or affected by the occupational environment. All institutions with possible interest in carrying out research in occupational health are being informed of the availability of support in this field. Forty new grants are being funded in 1962, and the total program for 1962 will reach 86 grants with obligations of $1,783,000.

Future plans will follow the outlines presented in the report of the Gross Committee and will aim at the support of studies of methods for following trends in occupational disease and potential hazards; clinical and epidemiologic studies of occupational diseases; toxicologic studies in the laboratory and the field; ergonomics and stress evaluation; studies of the impact of psychological, social, and economic factors upon the health and efficiency of workers; studies of methods of evaluation and control of the work environment; research on types of occupational health programs for local agencies and plants; and studies relating to the development of standards for the work environment. The program is not limited solely to the industrial environment, but includes all work environments, with recognition of special needs in the field of agricultural health. Support should be provided to universities, technical institutions, nonprofit organizations, and appropriate private groups to conduct research in occupational health to the extent that worthwhile projects are proposed and can be conducted by the available talent.

Obligations

1961	$1, 030, 066
1962	1, 783, 000
1963	1, 786, 000

RADIOLOGICAL HEALTH

RESEARCH GRANTS

The administration of a Division of Radiological Health research grants program was started in July of 1961.

Research grants are made for the purpose of contributing to the determination of the extent and character of the radiation problem as well as the mechanisms by which radiation produces damage. Studies aimed at the elucidation of the radiation damage cause-and-effect relationship are essential if low-level and long-range radiation exposure effects are to be accurately assessed and general control programs organized.

In this first year the research grants program is funded at $1,198,000. In 1962, 59 grants will be awarded and funded. These awards include grants for: (1) Delayed effects from medical uses of radiation; (2) study of radionuclide fallout in Pacific Northwest; and (3) development of a low-cost personal radiation meter.

In 1963 a funding level of $1,545,000 is being requested. This will provide for the support of approximately 75 grants. It is anticipated that use of the talents and facilities of these nongovernmental investigators will result in adding significantly to the progress to be made in solving problems related to the effects of radiation on humans and methods for lessening or eliminating these effects.

TRAINING GRANTS

These grants, initiated in 1961, are directed to stimulating and strengthening programs and curricula of universities and other educational institutions for the training of radiation health specialists and for providing new radiation health specialists for public health agencies, industry, hospitals, and universities to serve in radiation protection and control programs.

The Public Health Service's efforts in research and in technical assistance to States are aimed at helping the States to establish radiation exposure reduction and control programs of their own. These efforts can be achieved only if highly specialized, trained personnel are available to staff and manage such programs. Universities have been slow to provide radiological health training because of the large initial investment required in complex equipment. This grant program helps greatly to overcome this obstacle.

Grants totaling $500,000 were awarded to 15 universities in 1961 which provided for the training and support of 40 radiation health specialists. The 1962 program will provide for training about 75 specialists through grants totaling $1 million in 20 to 25 universities.

Examples of the impact of grants on the curricula of these universities can be found in: (1) A joint project by two universities to train students in control of radiation at its sources, management of criticality, behavior, and measurement of radioactivity, and public health administration for radiological health; (2) a program offered through a medical school emphasizing the practice of physics in a hospital setting and the use of advanced dosimetry in radiological applications; and (3) creation of a radiological health major in a master of science graduate engineering program.

The additional $1 million requested for this program in 1963 will permit realization of the goal set by the National Advisory Committee on Radiation of training 150 radiation health specialists annually, and will also effect improvement in the quality of the program.

WATER SUPPLY AND WATER POLLUTION CONTROL

GENERAL STATEMENT

The Federal Water Pollution Control Act authorizes the award of grants-in-aid for research, training, and demonstration projects, and for research fellowships.

The purposes of these grants are to encourage, cooperate with, and assist appropriate authorities, agencies, institutions, and individuals in the conduct of studies and training relating to the causes, control, and prevention of water pollution.

Support is available for projects and fellowships designed to improve the sanitary condition of water, to conserve water for public water supplies, propagation of fish and aquatic life and wildlife, recreational purposes, agricultural, industrial, and for other legitimate uses. Four types of grants are available:

> Research grants are awarded to individuals for the conduct of basic and applied research projects in water supply and pollution control. The purposes are to expand such research activities throughout the country and to encourage investigators to undertake research in neglected areas.
>
> Research fellowships are awarded to individuals for the support of specialized research training in the institution of their choice. The purpose is to increase the number of scientists qualified to carry on independent research in water supply and pollution control.
>
> Training grants are awarded to institutions to establish or expand training in water supply and pollution control. The grants provide funds to support training programs in a variety of departments, including expansion and improvement of faculties, and payment of stipends to graduate students participating in the training program.
>
> Demonstration grants are awarded to public and private institutions and agencies to support investigations and studies of an applied nature and to demonstrate the feasibility of new methods. These grants are designed to evaluate the application of research findings and to expedite incorporation of new knowledge into routine water supply and pollution control practice.

Until 1962, no funds were available to the Division of Water Supply and Pollution Control for any of the four types of grants. However, the National Institutes of Health supported 808 water supply and pollution control research grant projects in the period 1947–61 at a grant level of $8,709,730. The marked increase in the number of research projects supported in the later years prompted the formation in 1961 of a Research and Training Grants Branch within the Division of Water Supply and Pollution Control.

In the same year, the Division accepted responsibility of conducting the scientific program activities involving ongoing water supply and pollution control research grants then supported by the National Institutes of Health.

In 1962, the funds in the following table were authorized to be appropriated:

	Millions
Research grants	$2.462
Research fellowships	.100
Training grants	.700
Demonstration grants	.300
Total	3.562

In November 1961, the Research and Training Grants Branch sent out 725 packets of announcements of the grants-in-aid support available from the Division of Water Supply and Pollution Control relative to research grants, fellowships and training grants, and demonstration grants. These announcements were addressed to schools of hygiene, public health, and related departments. Announcements were also sent to departments of sanitary engineering, biology, chemistry, physics, fisheries, conservation, and related disciplines. Likewise, information was disseminated to State boards of health, water pollution, and agricultural agencies.

By January 5, 1952, a total of 153 replies had been received. Of these requests for additional information, 51 requested information relative to all programs; 87 in research grants; 108 in fellowships; 85 in training grants; and 86 in demonstration grants.

STATEMENT ON RESEARCH GRANTS

With the appropriation of funds for the support of research grants in 1962, the Division of Water Supply and Pollution Control undertook the administration of research grants transferred from the National Institutes of Health.

In 1962, the amended budget for research grants is $2,462,000. It is expected that this amount will fund a total of about 150 grants to be supported by the end of 1962. It is estimated that 105 grants will be for continuation and supplemental support. This would permit a funding of 38 new projects approved in 1962 and for 7 new projects that were approved in 1961 but which could not be paid because of insufficient funds.

A most important factor in the 1962 program has been the sizable increase in the number of research grant applications since the identification of the program with the Division of Water Supply and Pollution Control.

The 1963 budget is $3,285,000. It is estimated that the requirement for continuation and supplemental support active in 1963 will be $2,297,000 for 118 grants. This leaves $2,922,000 for payment for the 1962 backlog and for new projects that will be approved during 1963.

The purpose of research grants is to expand basic and applied research activities in water supply and pollution control and to encourage investigators to undertake research in neglected areas. The areas of effort contemplated include:

(1) Detection, determination, and evaluation of all types of hazards involving the use and reuse of water;

(2) Water quality and quantity conservation;

(3) Fundamentals of chemistry, physics, biology used or useful in a better understanding and utilization of natural and induced water phenomena;

(4) Water and wastes engineering applications of mathematical models and systems analysis and techniques;

(5) Sociological and economical aspects of water supply and pollution control; and

(6) Fish and wildlife as affected by water quality.

Research grants support in the field of water supply and pollution control was included in the National Institutes of Health appropriations during the years prior to 1961.

Obligations for 1961–63 are as follows:

1961	$2,106,271
1962 (estimated)	2,462,000
1963 (estimated)	3,285,000

RESEARCH FELLOWSHIPS

This program is being initiated during 1962 at a budget level of $100,000. It is expected that this amount will finance the first-year support for about 20 research fellowships, leaving a backlog of 5 approved but unpaid fellowships.

The 1963 budget of $300,000 will pay the second year of the 20 awards made in 1962, and the backlog of 5 research fellowships, leaving $180,000 for new fellowship awards in 1963.

It is estimated that 50 new research fellowship applications will be approved during 1963, amounting to $300,000.

The table below shows the estimated research fellowship support administered by the Division of Water Supply and Pollution Control during 1962 and 1963:

	1962		1963	
	Number	Amount	Number	Amount
Continuation and supplemental support	0	0	20	$120,000
New fellowships including carryover from previous year	20	$100,000	30	180,000
Total	20	100,000	50	300,000

TRAINING GRANTS

These grants are awarded to institutions for a support period of 5 years.

This program is going into operation in 1962 with an amended budget of $700,000. It is expected that $700,000 will support 28 of the estimated 30 approved applications, leaving a backlog of 2 approved but unpaid training grants amounting to $50,000.

The proposed budget for this activity in 1963 is $1,100,000. The 28 training grants approved in 1962 will be continued at an estimated higher cost of $890,000. The backlog of $50,000 will be paid, making a total commitment of $940,000, and leaving a balance of $160,000 for new training grants.

The table below shows the estimated training grant support administered by the Division of Water Supply and Pollution Control during 1962 and 1963:

	1962		1963	
	Number	Amount	Number	Amount
Continuations and supplemental support	0	0	28	$890,000
New projects including support for carryover from previous year	28	$700,000	7	210,000
Total	28	700,000	35	1,100,000

Hospital and Medical Facilities Research and Demonstration Program

HISTORY

During the early days of the development of the hospital survey and construction program (Hill-Burton) in 1946, it was recognized that many areas of hospital resources, services, and operation should be researched and demonstrated as a means of improving the efficiency and economical operation and maintenance of such facilities. Accordingly, the 81st Congress enacted Public Law 380 which authorized the Public Health Service to "conduct research, experiments, and demonstrations relating to the effective development and utilization of hospital services, facilities, and resources, and after consultation with the Federal Hospital Council, to make grants-in-aid to States, political subdivisions, universities, hospitals, and other public and private nonprofit institutions and organizations for projects, for the conduct of research, experiments, or demonstrations relating to the development, utilization, and coordination of hosiptal services, facilities, and resources."

The appropriation act for fiscal year 1956 authorized the expenditure of a sum not to exceed $1,200,000 for research activities. Similar appropriations were made for fiscal years 1957 through 1961.

As a result of the passage of Public Law 87-395, the Community Health Services and Facilities Act of 1961, the program was expanded to include grants for experimental and demonstration construction and equipment projects, and the appropriation authorization was increased to $10 million annually. The funds avaliable for the conduct of both the ongoing and the newly authorized grant programs were increased to $10 million for fiscal 1962. However, an administrative reserve of $1,883,000 was imposed which reduced the grant funds available for obligation to $8,117,000, of which $416,000 is for intramural research activities.

ADMINISTRATION

The administration of the program is assigned to the Division of Hospital and Medical Facilities.

The program is designed to aid research, experimental, and demonstration projects which will:

(1) Improve the operating efficiency of health facilities;
(2) Improve the design and functional layout of health facilities;
(3) Improve the coordination of community health facilities; and
(4) Develop more effective organizational patterns for the provision of health services.

The grant program is administered under the same general policies and rules as apply to the National Institutes of Health research grant programs. Applications are studied and reviewed by a study section composed of nongovernmental authorities in the fields of hospital administration, medical care, sociomedical economics, biostatistics, anthropology, sociology, and basic scientific research. Following recommendations as to priority and approval of the appliactions by the study section, the Surgeon General, as provided by the act, consults with the Federal Hospital Council concerning the project applications, and awards the research funds to the selected applicants. Machanisms for processing and review of experimental and demonstration construction and equipment projects as authorized by Public Law 87–395, and for service demonstration projects are presently being developed.

ACCOMPLISHMENTS—EXTRAMURAL RESEARCH

From 1956 through fiscal 1958, 44 new applications totaling $5,809,234 were approved and activated.

Applications approved for fiscal years 1959 through 1963, including obligations for new and continuation grants, are as follows:

Year	Number of new projects	Amount paid
1959	12	$1,003,947
1960	5	1,012,000
1961	13	1,015,690
1962	[1] 3	1,267,311
1963		[2] 521,187

[1] Through Jan. 19, 1962.

[2] Represents committed continuation projects only.

As of this date, 77 projects amounting to $8,355,966 have been approved and activated.

Within the above-mentioned categories, studies have been initiated, and some are completed which cover such areas as: (1) prepaid medical care and hospital utilization, (2) the problem of congestion in waiting rooms and in outpatient clinics, (3) coordinating hospital services with other community services and facilities, and (4) the advantages accruing from location of physicians' offices in or adjacent to hospitals.

The problems associated with obtaining the most efficient usage of expensive equipment and facilities in densely populated areas are being studied with the view of eliminating unnecessary duplication. This has taken the direction of seeking means of organizing planned cooperation among communities within a region and better mechanisms for achieving sharing of services and for providing for continuity of patient care between institutions.

Other studies are concerned with hospital design, hospital engineering and hospital equipment in terms of safety, functional layout, and more efficient operation. Plans are now being made to stimulate increased research effort relating to the factors which affect hospital utilization.

ACCOMPLISHMENTS—INTRAMURAL RESEARCH

For each fiscal year from 1956 through 1961 up to a maximum of $200,000 was available for intramural research. For fiscal year 1962, $416,000 is available and $600,000 is proposed for 1963. Within these realtively small amounts, however, considerable progress has been made in researching selected areas of hospital services, resources, and facilities. Such projects as noise control in hospitals, lighting of patient bedrooms, and the dispersion of ether in operating rooms, have added to the knowledge in the field of efficient and safe hospital design and construction. Also, this program gave the major impetus to greater progress in the organization of hospitals around the progressive patient care concept with its philosophy of tailoring hospital services to the medical and nursing needs of patients. This concept has now been generally accepted throughout the Nation as an improvement in hospital organization, and many hospitals have already adopted one or more of the elements of progressive patient care as a part of their operational structure.

CINCINNATI SANITARY ENGINEERING CENTER

Mr. Marshall. You were building a laboratory in Cincinnati, Ohio, having to do with pollution of milk?

Dr. Terry. For many years we have been located in Cincinnati with our sanitary engineering center. The work of this center was originally primarily directed toward water and water pollution problems. As our programs have grown up we have not had adequate facilities elsewhere to harbor much of the research and the studies going on in related areas such as occupational health, radiological programs, some studies in air pollution; those have been located in leased buildings, in temporary facilities of one type or another, which have been set up there in Cincinnati. So that we do have this nucleus of environmental health programs.

However, the basic setup of the sanitary engineering center, the Taft Center, is primarily directed toward problems related to water pollution, prevention, treatment, et cetera.

RADIOLOGICAL CONTAMINATION OF MILK

Mr. Marshall. As you know, there has been a lot of publicity given to the dangers of contamination of milk through fallout. Have you been doing some testing along that line?

Dr. Terry. Yes, sir. Over a long period of time we have maintained surveillance stations to detect fallout in relation to radiological health. When the Russians began their testing program back in early September, it was necessary for us to very rapidly step up this surveillance network. We increased the numbers of stations. We had been working with universities, health departments, medical schools, and various other organizations, in terms of instituting, developing, and maintaining this network. It extends over our entire country, including Alaska, Hawaii, and Puerto Rico. So that for aerial testing we have something in excess of 60 stations which are, in general, doing 24-hour air sampling, 7 days a week.

Mr. Marshall. Why did you curtail this work at Cincinnati?

Dr. Terry. We have not curtailed the work at Cincinnati.

Mr. Marshall. Did you drop it down below the pace that you had intended to do there?

Dr. Terry. I think we are doing everything at Cincinnati that we have room for. We are terribly crowded there. Many of these stations are field sampling stations and not directly related to the type of research activity at Cincinnati.

Mr. MARSHALL. I may have been misinformed, but I was informed funds had been placed in this so-called reserve.

Dr. TERRY. Not in the field of radiological health. There were several areas of our programs where there were no reserves placed, and radiological health is one.

Mr. MARSHALL. So that you are continuing that at the pace——

Dr. TERRY. At the pace for which Congress appropriated, and there have been no administrative reserves placed on that.

Mr. KELLY. Within the total radiological health program they have undergone some reprograming activities because of the Russian testing, but as I understood it, all of the reprograming was to intensify the surveillance field. I find it hard to believe that there has been any reduction in any part of the surveillance field.

Dr. ANDERSON. That is correct. There are two programs here. One is the radiological program and the other is the milk and food program. The milk and food program and the radiological program are cooperating in this endeavor. There was no reserve at all established in the radiological health program. There was a small reserve established in the milk and food program.

The amount of activity with regard to the radioactive fallout problem has been greatly intensified. The number of stations where milk is being sampled is 62. In addition, we are sampling total diet content with regard to radioactive content in 12 places in the country, institutions where we can get a stable dietary sample. These specimens are examined not only at Cincinnati but also at three radiological laboratories in existence, one in Winchester, Mass., one in Montgomery, Ala., and one out in Las Vegas, Nev., to which these specimens may be sent.

Mr. MARSHALL. In your testing of the effect of fallout on milk, have you found any samples of milk anywhere in the United States that have strontium 90 content that would be dangerous to a person who might consume it, from a health standpoint?

Dr. TERRY. We have not found samples containing strontium 90 which was of a degree that we felt was not safe for consumption by man. I think in that respect this is something that should be mentioned. Some of the shorter active radio nuclei, such as radioactive iodine, have been our principal concerns over the past few months. Judging from past experience, we expect more strontium 90 and some of these long-lived radio nuclei to come down with the spring rains. With this goes a responsibility which we have and which we are carrying in terms of doing adequate sampling not only of milk but of rain and water supplies to be sure that we know what is happening in terms of being in position to advise the American public if there are precautions which should be taken. Thus far they have not been necessary.

RESPONSIBILITY TO PROTECT PRODUCERS

Mr. MARSHALL. I, for one, think the Public Health Service has a very grave responsibility in that field from the standpoint of not only informing the consumers but from the standpoint of giving some degree of protection to the people that produce that food.

Dr. TERRY. That is right, sir.

Mr. MARSHALL. Unfortunately, with a great deal of emotional feeling prevailing in the country at the present time, people will pick up some newspaper release and find that percentagewise strontium 90 has increased, and many of those people read that and become alarmed, where that percentage increase does not in any way endanger that food.

Perhaps they may unwittingly consume other food that is even higher in strontium 90 or some other elements that might be more injurious to their health.

As you know, we have had a surplus of milk buildup partially due to some of these fear complexes. Our President made a fine statement and released some very fine information to the press recently upon the value of milk from a dietary standpoint. There are a lot of people throughout the country that are releasing information upon these foods that I am sure has not been even brought to the attention of the Public Health Service.

I expect that the Public Health Service does not have any means of censoring any of that information that is being put out. To me it is a rather dangerous thing to have that promiscuous reporting. I do not know of any other organization that has the confidence of the people except the Public Health Service that can give the correct information.

The dairy industry is a large industry. Something like this can be more easily absorbed by the dairy industry than by some smaller industries. I can think of a number of kinds of vegetables that if somebody started that story about them and people quit eating them, it would put the producers in very bad position and might be extremely harmful to the consumers from a dietary standpoint. If you would like to enlarge on this in the record, I would appreciate it.

Dr. TERRY. I would like to say more about it. We in the Public Health Service are mindful of the responsibility that we have in this direction. It has been distressing to us, the number of what I would call irresponsible comments that have gotten to the public and sometimes articles with regard to the danger of the fallout.

EFFORT TO INFORM THE PUBLIC

We have attempted to carry out a concerted attack to keep the public informed. For instance, back in November we called in the radiological health representatives from all of the States. In some instances it was the State health officer and sometimes it was somebody else—the radiological health officer or his representative. We gave them all the information we had at that time, gave them the interpretation that we would make of this information. We wanted to assure them we would continue to make information available just as fast as we got it.

I think one of the things we have felt very strongly was that we must not withhold information, even though it be negative information in terms of the fallout. Consequently, in releasing daily information, as we have, to the press in some instances when somebody says it has gone 4½ to 5 times where it was yesterday or last week, one might tend to misinterpret this because it would be of no significance.

At the same time, we have attempted as diligently as we could not only to release the information but to try to educate the press, the responsible press, and the public with regard to this. We have said repeatedly that in terms of the concentration of radio nuclei which have appeared in milk, water, and other foods, and in the air, over these past few months, this has not been dangerous.

Mr. MARSHALL. People would not have any confidence in the Public Health Service unless you released factual information. I am certain that no one wants you to withhold factual information. I think it might be well if that information could be put in terms that people understand so that they do not draw the wrong conclusions from information. When you start with a reporting of strontium 90 content which might be close to zero and a figure put in which shows figurewise a higher percentage of increase, that does not necessarily give the true picture as far as their health is concerned.

I think that a little caution might be shown in pointing out that that does not endanger the health of people.

Dr. TERRY. I realize we have a great responsibility in terms of education information.

Mr. FOGARTY. You cannot control the newspapers and keep them from digging out a figure that might make a headline.

Dr. TERRY. The most we can do is try to educate them to where they know at least a reasonable interpretation of the data being released. This we have tried very hard to do.

Dr. ANDERSON. On that, we have had a series of orientation seminars for the press membership in the Washington area where they can come in and learn some of the basic principles that are involved. We have also had meetings with the dairy industry to keep them currently informed, involved as they are in the picture as it changes and develops; also to think about what countermeasures there are that might be applied should any become necessary, but up to this point none have.

SYPHILIS INCIDENCE IN THE SOUTHEAST

Mr. MARSHALL. I have in my hand a publication that you put out, "The Eradication of Syphilis." I note on page 21 of that report that it shows the cases per hundred thousand of population. I note that all of the States surrounding Alabama are more than double the number of cases of infection that are found in Alabama. What is the reason for that?

Dr. TERRY. I do not know, sir. Dr. Bauer, do you have an answer?

Dr. BAUER. The whole Southeastern United States has for a long period of time had a much higher rate or incidence of syphilis than the other part of the United States, which is due to some of the social and economic problems.

Mr. MARSHALL. Is not part of the reason that the State of Alabama had a control program that was quite effective a few years ago?

Dr. BAUER. The State of Alabama has had quite an effective program, yes, sir.

Mr. MARSHALL. Is it not true that some of the people down there felt we were interfering with their private lives when we carried on that effective control program?

Dr. BAUER. As I recall, the problem down there was that they had a mandatory blood test program, and there were certain individuals that felt as if this should not be so.

EFFECTIVENESS OF MANDATORY BLOOD TESTING

Mr. MARSHALL. This mandatory blood testing program is a very easy way to detect the prevalance of syphilis, is it not?

Dr. BAUER. Any blood-testing program will detect syphilis. I only say it in that way because I think that over a period of years we have found out that a combination of many things—such as case finding and education—is more important than just a mandatory blood-testing program.

Mr. MARSHALL. Granting everything you have said, it is still the most economical way in the long run of any way that you know.

Dr. BAUER. Mr. Chairman, I do not believe so, because it finds a lot of old syphilis, and the emphasis of our program is, of course, on the finding of early syphilis, and the most efficient way of doing that is by examination of the individual with early syphilis and getting him to name all his contacts and associates, and bringing those in. This is the most effective way of actually controlling it. This other means is helpful.

Mr. MARSHALL. I have never been quite able to understand the attitude of some people. We will eradicate diseases such as a foot-and-mouth disease in cattle, carry on a control program for eradication of brucellosis and tuberculosis in cattle, and we have been remarkably effective with that. Yet some of these same people do not want to protect their kids. What is the reason for that?

Dr. BAUER. I do not know, sir. I have spent most of my adult life in syphilis control. I feel this eradication program we now have before us will do the job.

INCIDENCE OF SYPHILIS IN DISTRICT OF COLUMBIA

Mr. MARSHALL. I note right here in the District of Columbia you show on your chart that there is a prevelance of syphilis here in the District of Columbia, the highest, I believe, of anywhere in the United States. That shows 4,876 cases per hundred thousand population. Here in the District we have a Federal Government for the city of Washington, and we have a Public Health Service. What can we do about the District of Columbia right here in the shadow of the Capitol?

Dr. BAUER. I think the District of Columbia and some of these other incidence rates are indicative of the very worthwhile concern of this committee and actually stimulated this report. I think if we get the proper manpower and carry out the recommendations of this report, we can bring this down. It will mean that the effort should be placed in these high-incidence areas rather than just a general distribution of manpower throughout the country. We should focus on where the problem really is.

Mr. **Marshall.** Is the Public Health Service making any special effort in the District of Columbia at the present time?

Dr. **Bauer.** Mr. Marshall, I cannot tell you specifically. I know we are assisting in the District of Columbia. Dr. Brown, who has this program, and will be before the committee, can answer that specifically.

Mr. **Marshall.** As far as you know, no additional funds have been requested of the Appropriations Committee for the District of Columbia to attack this problem?

Dr. **Bauer.** Not to my knowledge. I am not familiar with their health appropriations.

Mr. **Marshall.** That is all, Mr. Chairman.

Mr. **Fogarty.** Is there anything else?

Mr. **Doran.** There is a special project grant to the District of Columbia of $76,959 for 1961 and $79,870 for 1962.

Dr. **Terry.** This is the annual grant allotment, special project.

Mr. **Fogarty.** Doctor, is there anything else you would like to say before we go on?

Dr. **Terry.** I do not think so, Mr. Chairman.

Mr. **Fogarty.** Thank you very much.

National Expenditures for Medical Research

At this point we shall place in the record the two tables you prepared for us concerning national expenditures for medical research.

(The tables referred to follow:)

Federal expenditures for performance of medical and health-related research, fiscal years 1960, 1961, and 1962 [1]

[Thousands of dollars]

Agency	1960 actual			1961 actual			1962 estimate		
	Total	Budgeted	Directly related	Total	Budgeted	Directly related	Total	Budgeted	Directly related
Total	443,945	(2)	(2)	569,622	459,039	110,583	789,561	649,898	139,663
Atomic Energy Commission	50,254	6,222	44,032	55,664	6,919	48,745	64,679	7,511	57,168
Federal Aviation Agency	880	880		1,726	1,726		1,870	1,870	
National Aeronautics and Space Administration	665		665	4,850		4,850	20,620		20,620
National Science Foundation	13,760		13,760	11,775		11,775	11,660		11,660
Office of Emergency Planning	408	408		471	471				
Veterans' Administration	15,087	15,087		18,447	18,447		26,429	26,429	
Department of Agriculture	14,322		14,322	17,842		17,842	19,950		19,950
Department of Defense	[2] 38,228	(2)	(2)	48,026	21,540	26,486	59,898	30,543	29,355
Department of Health, Education, and Welfare	308,776	308,776		409,154	409,154		582,554	582,554	
(National Institutes of Health)	(279,702)	(279,702)		(372,079)	(372,079)		(518,733)	(518,733)	
Department of the Interior	745		745	885		885	910		910
Department of State	820	820		782	782		991	991	

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[1] Coverage is limited to conduct and support of medical and health-related research. Support of other activities such as training or capital outlays for research facilities is not included in this series.

[2] For fiscal 1960, Department of Defense data were not furnished; data shown are estimates published in "Health Research and Training," House Committee on Government Operations, H. Rept. No. 321, 87th Cong. 1st sess., Apr. 28, 1961, p. 11.

NOTE—The statistics shown above—actual obligations for fiscal years 1960 and 1961 and estimates for 1962—were reported by Federal agencies to NIH following a review by each agency of its research activities to show explicitly obligations for all medical and health-related research in all fields of science (biological, medical, agricultural, psychological, physical, mathematical, engineering, social) distinguishing between (1) funds separately budgeted for medical and health related research, specifically identified, programed and justified as such, and supported for the purpose of improving human health (all the research activities of agencies or subagencies whose sole mission is advancement of human health through research may thus be included); and (2) funds for research directly related to health in terms of substance or probable application, but which derive from funds budgeted, justified, or supported for purposes other than medical or health objectives (for example, the general support of science, the promotion of agriculture, the achievement of the Nation's strategic objectives in outer space). As the table shows, almost 20 percent of the total represents this latter category of research directly related to health but supported for other purposes. The time series for earlier years will be revised, as soon as possible, on a basis consistent with the coverage shown above.

National expenditures for performance of medical and health-related research, by source of funds, fiscal years 1960, 1961, 1962 [1]

[Millions of dollars]

Source of funds	1960 actual	1961 estimate [2]	1962 estimate [2]
Total	$820	$1,000	$1,275
Government	467	596	820
Federal	444	570	790
State and local	23	26	30
Industry	253	292	335
Private support	100	112	120
Foundations and health agencies	55	60	63
Other private contributions	12	15	18
Endowment	19	19	19
Institutions' own funds	14	18	20

[1] Coverage is limited to conduct and support of medical and health-related research. Support of other activities such as research training or capital outlays for research facilities is not included in this series.

[2] Data on Federal obligations are available at the beginning of the fiscal year; firm data on non-Federal expenditures cannot be obtained until after the end of the fiscal year. Therefore the estimates for 1961 and 1962 may overstate the Federal share. These estimates are subject to revision pending completion of surveys of research expenditures by hospitals, State governments, medical schools, universities, and research institutes.

NOTE.—The data shown in the above table for 1960, 1961, and 1962, reflect two significant revisions in coverage of national expenditures for medical research.

(1) Both the coverage and the method of measuring Federal agency obligations for medical and health-related research has been improved. This improvement in the series, undertaken by the National Institutes of Health in conjunction with the Bureau of the Budget, answers a long-recognized need for data which would show more accurately the participation of Federal agencies in medical research; it has also made possible the implementation of recommendations made in reports of both the Senate and the House Government Operations Committees to (*a*) include research, in all fields of science, that is medically related, distinguishing between research obligations budgeted and justified for health purposes, from obligations for research directly related to human health, but supported for other purposes; and (*b*) in recognition of the growing magnitude and importance of medical research expenditures provide the data for a section devoted to this subject in the "Special Analysis on Federal Research and Development Programs" published in the budget document.

(2) This series also provides improved coverage of the industry sector. In prior years, the data for this sector were confined to the pharmaceutical industry. Through the cooperation of the Bureau of the Census and the National Science Foundation, estimates have been made available for the medical supply industry. And a preliminary inquiry conducted by the National Institutes of Health has provided the first available estimates for research expenditures in the medical electronic industry. Thus, coverage has been enlarged for the industry sector to include significant components that hitherto had been unavailable.

Monday, February 5, 1962.

BUILDINGS AND FACILITIES

WITNESSES

HARRY L. DORAN, CHIEF FINANCE OFFICER

DR. JAMES A. SHANNON, DIRECTOR, NATIONAL INSTITUTES OF HEALTH

RICHARD L. SEGGEL, EXECUTIVE OFFICER, NATIONAL INSTITUTES OF HEALTH

GORDON E. McCALLUM, CHIEF, DIVISION OF WATER SUPPLY AND POLLUTION CONTROL

DR. CLARENCE A. SMITH, CHIEF, COMMUNICABLE DISEASE CENTER

DR. LUTHER L. TERRY, SURGEON GENERAL

JAMES F. KELLY, DEPARTMENT BUDGET OFFICER

Object classification

[In thousands of dollars]

		1961 actual	1962 estimate	1963 estimate
	PUBLIC HEALTH SERVICE			
21	Travel and transportation of persons	41		
24	Printing and reproduction			1
25	Other services		547	349
26	Supplies and materials	6		
31	Equipment	166	446	1,054
32	Lands and structures	12	585	
	Total, Public Health Service	225	1,578	1,404
	ALLOCATION TO GENERAL SERVICES ADMINISTRATION			
21	Travel and transportation of persons		17	4
24	Printing and reproduction	8	109	63
25	Other services	715	2,402	861
26	Supplies and materials	7	1	
31	Equipment	190	122	
32	Lands and structures	2,152	7,399	28,131
	Total, General Services Administration	3,073	10,050	29,059
	Total obligations	3,298	11,628	30,464

Program and financing

[In thousands of dollars]

	Costs to this appropriation					Analysis of 1963 financing			
	Total estimate	To June 30, 1960	1961 actual	1962 estimate	1963 estimate	Deduct selected resources and unobligated balance, start of year	Add selected resources and unobligated balance, end of year	Appropriation required, 1963	Appropriation required to complete
Program by activities:									
1. Communicable disease center	15,800		18	654	4,824	11,929	10,305	3,200	
2. Water pollution control laboratories	16,000			1,016	1,321	584	3,263	4,000	10,400
3. Research facilities and site acquisition (animal farm, NIH)	12,808	147	52	472	2,229	2,529	2,420	2,120	7,488
4. Construction of master utilities extension, NIH	5,645			265	925	380	4,305	4,850	150
5. Construction, building 12, NIH	1,800				71		1,729	1,800	
6. Construction of laboratory facilities, Puerto Rico (NIH)	600				36		564	600	
7. Construction of biologics standards annex, NIH	4,650			200	150			150	4,300
8. Construction of cancer research facility, NIH	10,280				3,250		7,030	10,280	
9. Environmental health facilities planning	785			785					
10. General office building extension, NIH	6,200			168	335	532	197		5,500
11. Middle America research unit housing (NIH)	400			389	11	11			
12. Construction of animal quarters, NIH	2,606	1,217	155	285	850	949	99		
13. Construction of research facilities, Lexington, Ky. (NIH)	350		2	250	98	98			
14. Extension of Clinical Center cafeteria, NIH	335			29	306	306			
15. Biologics standards laboratory, NIH	3,500	3,424	62	14					

Program and financing—Continued

[In thousands of dollars]

	Costs to this appropriation					Analysis of 1963 financing			
	Total estimate	To June 30, 1960	1961 actual	1962 estimate	1963 estimate	Deduct selected resources and unobligated balance, start of year	Add selected resources and unobligated balance, end of year	Appropriation required, 1963	Appropriation required to complete
Program by activities—Continued									
16. General office building, NIH	9,775	2,260	5,187	2,328	--------	--------	--------	--------	--------
17. Construction of surgical facilities, NIH	2,183	1,074	638	363	108	108	--------	--------	--------
18. Construction of dental research building, NIH	3,576	2,104	1,388	84	--------	--------	--------	--------	--------
19. Construction of library facilities	7,100	2,230	2,139	2,214	311	517	206	--------	--------
20. Equipment, Communicable Disease Center	1,699	1,250	449	--------	--------	--------	--------	--------	--------
21. Construction of animal quarters, Hamilton, Mont. (NIH)	150	147	3	--------	--------	--------	--------	--------	--------
Total program costs	106,242	13,852	10,093	9,515	14,825	17,944	30,118	27,000	27,838
Change in selected resources [1]	--------	--------	−6,795	2,113	15,639				
Total obligations	--------	--------	3,928	11,628	30,464				
Financing:									
Unobligated balance brought forward	--------	--------	−4,548	−5,027	−11,629				
Unobligated balance carried forward	--------	--------	5,027	11,629	8,165				
New obligational authority	--------	--------	3,776	18,230	27,000				
New obligational authority:									
Appropriation	--------	--------	3,470	18,230	27,000				
Reappropriation	--------	--------	306	--------	--------				

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[1] Selected resources as of June 30 are as follows: Unpaid undelivered orders, 1960, $10,997 thousand; 1961, $4,202 thousand; 1962, $6,315 thousand; 1963, $21,953 thousand.

GENERAL STATEMENT

Mr. FOGARTY. The committee will come to order. We have the request for appropriations for "Buildings and facilities" before us this morning. Who is going to make the opening statement?

Mr. DORAN. Mr. Chairman, I have a statement I would like to summarize and submit for the record.

Mr. FOGARTY. We shall place the prepared statement in the record and you may go ahead.

(The prepared statement follows:)

STATEMENT BY CHIEF FINANCE OFFICER, PUBLIC HEALTH SERVICE

Mr. Chairman and members of the committee, the appropriation, "Buildings and facilities," finances a number of the major construction projects of the Public Health Service. During the current year work is being done on 16 such projects. The appropriation for 1962 provided funds to be used in connection with these activities: construction at the Communicable Disease Center; planning for water pollution control laboratories; planning and construction at the National Institutes of Health animal farm; planning a master utilities extension at the National Institutes of Health; planning an extension to the general office building at the National Institutes of Health; construction of housing at the Middle America Research Unit; and provision of facilities for pathogen-free animals at the National Institutes of Health.

The 1963 budget estimate totals $27 million, and is to finance the following eight items:

COMMUNICABLE DISEASE CENTER ($3,200,000)

Funds were appropriated in 1962 to expand the Communicable Disease Center facilities located on Clifton Road in Atlanta, Ga., and to provide an offsite animal breeding and holding facility on an 80-acre site near Lawrenceville, Ga. This budget provides for essential equipment needed for efficient utilization of the expanded facilities and for reutilization of 31,407 net square feet of the existing space by relocation of certain laboratories. The principal components of the project are as follows:

I. Scientific equipment ($767,280)

The Communicable Disease Center buildings are designed around basic principles of safety isolation for the protection of employees and the public. Laboratory work on a specific pathogen must be kept completely isolated from other work to prevent cross-infection which could both involve people and lead to false and misleading results from time-consuming and expensive experiments. The new facilities will reflect this isolation principle.

Although all existing scientific facilities in usable and transportable condition in present temporary facilities will be reutilized within the new facilities, it is mandatory that up-to-date conventional scientific equipment be provided in order to make optimum use of the additional space. High usage conventional equipment, such as microscopes, water baths, incubators, refrigerators, and centrifuges cannot be shared between experiments or laboratories without violating the isolation principle.

Many items of highly specialized scientific equipment, however, such as an electron microscope, multichannel and amino acid analyser, electroencephalograph, neutron activator, and certain specialized spectrophotometers will be shared to the maximum and accordingly purchased in very limited numbers. Much of this equipment is difficult to move because of size and complexity. Also, building design often becomes involved in order to protect the equipment from vibration and stray electrical-magnetic fields. For these reasons, this specialized scientific equipment will be set up more or less permanently at various strategic locations for multiactivity use.

II. Cages and service equipment ($1,518,800)

The new animal building is designed to meet the basic safety principle—isolation. Animals under experiment require isolation and individual experiments must be isolated one from another. The animal experimental facilities of the new building provide for the isolation of experiments; an increase in the number of cages is required to provide the isolation for the animals.

Cages in the animal rooms must be washed and sterilized on a regular and frequent basis, normally once each week. Otherwise, a hard chemical deposit is formed which resists machine washing and must be removed manually with strong acid, an expensive and hazardous process.

Animal cages now in use are either stainless steel or galvanized wire. The new animal building has a central cage-washing area with machines to process stainless steel cages. Experience has shown that stainless steel cages resist the strong acids of animal waste products and withstand well the mechanical-thermal tresses induced by frequent sterilizing and cleaning. For these reasons and the fact that galvanized cages have a life expectancy of only 2 to 3 years in contrast to an indefinite life expectancy of stainless steel, the latter-type cages will be used in the new animal building.

Funds are included in this budget for the purchase of steel cages for replacement of galvanized wire cages and to provide for cages in transit to and from the wash area so that experimental cages can be washed and sterilized each week. Other accessory service equipment, such as animal-cage racks, carts, bins, discard pans, etc., will be needed to support the new animal breeding and holding facility.

III. Renovation costs of existing space ($314,070)

A total of 31,407 net square feet of existing space now being used for animals will be renovated and prepared for reutilization for laboratories upon completion of additions at the center. Renovation of this space will consist of replacing floor cover where damaged, rearranging partitions, supplementing lighting and electrical service, installing controlled temperature rooms and walkins, modifying certain aspects of the air-conditioning and ventilation systems, as well as painting where needed.

IV. Built-in equipment to be placed in renovated space ($313,325)

The 31,407 net square feet of space to be renovated must be equipped with the permanent built-in laboratory equipment at the time of renovation and conversion for laboratory use. In addition to approximately 2,093 linear feet of laboratory benchwork, this area will require a considerable number of biological safety cabinets, chemical fume hoods and laboratory steam autoclaves.

V. Other equipment ($286,525)

The new facilities will provide for increased functional space at the center. They will also include a warehouse of minimum space which must be used as effectively as possible. Items such as fork lifts, pallets, shelving, and other warehousing equipment must be provided for the efficient handling of carloads of laboratory glassware, bales of animal bedding, chemicals, cylinders of compressed gases, and a variety of laboratory and office supplies.

Modern maintenance and equipment development shops are being provided to support the center and its scientific work. These shops must be capable of repairing a voluminous number and variety of built-in, highly complex, and expensive items of scientific equipment as well as developing specialized equipment not readily available from commercial sources. The safety of people and the quality of experiments depend on prompt and complete shop service.

Seats, motion picture projection, and sound equipment must be provided for the new 500-seat auditorium.

Two special air-conditioned temperature-controlled trailers, designed to carry specific pathogen-free animals from the breeding and holding facilities at Lawrenceville to the laboratories at the center, together with a prime mover, must be provided. Prompt delivery of 2-day-old mice, for example, in quantities is very important because of length of time available for optimum experimentation.

WATER POLLUTION CONTROL LABORATORIES ($4 MILLION)

The 1961 Federal Water Pollution Control Act Amendments (Public Law 87–88) provided for establishment of water pollution control laboratories. At least seven were specified—one each in regions of the Nation designated as Northeast, Middle Atlantic Southeast, Midwest, Southwest, Northwest, and the State of Alaska. Planning, design, and site costs for these seven laboratories were provided for by an appropriation of $1.6 million in 1962.

This budget provides for construction of a Northwest laboratory at Corvallis, Oreg., and a Southwest laboratory at Ada, Okla. Sites for these structures have been selected and planning is underway.

The schedule now contemplated calls for completion of the planning and design work for both installations by October 1962. On this timetable, bids will be solicited and contracts for construction will be let in fiscal year 1963. Both laboratories will be completed in fiscal year 1965. The cost of portable equipment for these laboratories is not included in this estimate. Such equipment will be provided for in a future budget request.

RESEARCH FACILITIES CONSTRUCTION—ANIMAL FARM ($2,120,000)

The National Institutes of Health acquired title to a 513-acre farm in Montgomery County near Poolesville in May 1960. Work on temporary alterations of existing buildings to accommodate large animals was begun immediately so that some of the animals held in Bethesda and at the Casey Farm near Rockville could be moved to the new farm.

In addition to the alteration of existing facilities, work was begun on the development of a master site plan designed to provide locations and utilities for those activities that are planned for the farm. With the $250,000 provided in 1961, we have proceeded with alterations and with plans to design the first phase of construction planned for 1962. Programs of requirements for the 1962 construction have been completed and design is expected to be completed early in 1962. Funds provided in 1962 will be used for construction of farm-type animal facilities for large animals, a kennel building for large laboratory animals, quarters for essential farm personnel, and the basic utilities required for the farm development.

The concept of an animal farm to serve the National Institutes of Health is that the farm is essentially an extension of the animal holding and production facilities of the Bethesda reservation, the most urgent need being facilities for large farm-type animals. The second priority for the farm is to provide space and facilities for selected studies with large animals including animal behavioral studies under the direction of the National Institute of Mental Health and other studies of large animals involving the observation of noncommunicable diseases.

In addition to the requirements for farm-type animals, the planning for the new animal farm included consideration of a third priority, that of meeting the needs of Institute research programs for additional animal holding space on the reservation. This problem is associated with the general policy that no additional buildings will be constructed on the Bethesda reservation exclusively for the production of conventional animals. It is reasoned that space required by the Institutes for animals being used in research or animals that are under observation by the scientists should be located on the reservation at Bethesda. It also follows that programs for production of germ-free animals and specific pathogen-free animals for use in research require a high degree of laboratory control and should likewise be located on the Bethesda reservation convenient to the laboratories and the scientists. The rapid expansion of research on the Bethesda reservation, together with research developments that require additional animals or special types of animals, has resulted in an extreme shortage of animal space. Short-term needs for additional facilities are being met by the construction of a temporary structure at the farm. To meet the long-term needs for animal quarters on the Bethesda reservation, we plan to transfer selected animal holding operations and a portion of the animal production program to the farm as rapidly as facilities become available. This will permit the effective use of existing animal space to meet the needs of the Institutes for special projects and for holding of animals requiring close observation. Based on these needs, the next step in the development of the farm project is as follows:

Phase I-A. Construction ($1,600,000)

The caged animal wing, totaling approximately 20,000 net square feet will provide space for approximately 1,500 large Rhesus monkeys.

The animal behavior area will contain a barn-type building of approximately 5,000 net square feet, a utility building of approximately 2,000 square feet, and a laboratory building of approximately 5,000 net square feet. In addition, the area will contain some outdoor animal habitats.

Phase II. Planning ($520,000)

The kennel wing will become a part of the kennel building and will be similar to the two kennel wings constructed in phase I (15,000 net square feet).

Cages will be provided for the caged-animal wing specified in phase I-A.

The agricultural management building, approximately 6,000 net square feet, will be used for the storage and maintenance of agricultural machinery and equipment and for the storage of fertilizer, seed, etc.

The residence, approximately 1,200 square feet, will be similar to the two constructed in phase I.

The small animal production building will total approximately 100,000 net square feet, which will contain a service area for this structure.

The waste chemical disposal plant will be used for temporary storage and ultimate disposal of gaseous air contaminants and other waste chemicals which are disposed of by burning. This facility will also be used by the NIH Bethesda operations.

The hazardous building will contain approximately 7,000 net square feet and will be used for chemical and bacteriological hazards.

Grounds and utilities work to support these above facilities are necessary.

Construction of phase I-A and planning for phase II are expected to be completed by March 1964.

MASTER UTILITIES EXTENSION ($4,850,000)

The 1962 appropriation included $645,000 for planning the master utilities extension. The estimate for this project, as currently computed, totals $9,561,900. Since $4,589,100 was included in the cancer and mental health-neurology research facilities for utility extension, our remaining requirement is now approximately $5 million.

This project provides the necessary utility services to supplement and update the existing utility resources at the National Institutes of Health. Included in the utility extension are (1) 3,000-ton refrigeration unit, (2) chilled water underground distribution system, (3) electrical distribution system, (4) fire alarm and watch report system, (5) central steam distribution system, (6) water storage and distribution system, and (7) sewage system.

It is estimated that planning will be complete by May 1963 and construction completed by January 1965.

CONSTRUCTION, BUILDING 12, NIH ($1,800,000)

With the increasing research and extramural activities, there is a continuing need for additional space to house NIH activities. In an effort to alleviate space deficiencies a proposal has been developed for extending building 12 and adding a third floor which would provide an additional 60,000 square feet of space.

With this expansion, the total space available in building 12 would then be adequate to house the expanded data processing and machine tabulation service and to consolidate central service activities now dispersed in a number of locations throughout the reservation and in off-site rental facilities. It would be particularly appropriate to consolidate, in this building, those functions such as accounting, payroll, and purchasing which utilize the computer service on a continuing day-to-day basis. Because of its centralized physical location, building 12 is also an appropriate location for housing functions which service the surrounding program activities.

The proposed project would renovate for office use 17,000 square feet of space now used for other purposes and add 60,000 square feet of new construction.

Completion of plans is scheduled for mid-1963 and construction is expected to be complete by April 1965.

LABORATORY FACILITIES, PUERTO RICO ($600,000)

An additional laboratory facility for the National Institute of Neurological Diseases and Blindness is needed on the grounds of the Puerto Rico Medical Center. This would be in addition to the present space now occupied at the USPHS Outpatient Clinic and Quarantine Station in San Juan.

The availability, in 1956, of a free-ranging colony of rhesus monkeys, the only one of its kind in the New World, provided a unique opportunity for the prosecution of the experimental phase of the National Institute of Neurological Diseases and Blindness collaborative project in cerebral palsy and mental retardation. This was aided by the willingness of the School of Medicine of the University of Puerto Rico to collaborate in the project and to allow the Institute to erect and furnish with suitable equipment a laboratory in neonatal newborn physiology.

The project was initiated by a contractual agreement between the Institute and the University of Puerto Rico on April 16, 1956. Actual experiments on monkeys began in February 1957. Laboratory space, both at the School of Medicine of the University of Puerto Rico, at the outpatient clinic in San Juan, and NIH, totals approximately 9,000 square feet.

The main function of the laboratory of perinatal physiology is to conduct fundamental animal research on problems of development, growth and maturation, and the aberrations of these—particularly in respect to the nervous system—that result from introduction of adverse conditions during the prenatal, natal, and early postnatal periods of life.

Research will be carried forward by competent scientists in the following disciplines: (*a*) Morphology, including cytology, embryology, and genetics; (*b*) fetal and gestational physiology; (*c*) psychology; (*d*) experimental neurology and electroencephalography; (*e*) neuropathology; (*f*) biochemistry, including neurochemistry; and (*g*) behavioral science and anthropology.

New construction will be required in order to provide essential facilities for psychology, physiology, neuropathology, and biochemistry. Therefore, funds are requested for construction of a laboratory and animal colony building on the grounds of the Puerto Rican Medical Center. This unit will provide 52 modules for laboratories, for some central services such as cage washing and incineration, for officers, and for cage space for the animals undergoing study and experimentation.

BIOLOGICS STANDARDS ANNEX ($150,000)

In the past 5 or 6 years the importance of biologics control and its role in the future developments of preventive and therapeutic medicines has continually grown until in 1962 the program is approximately 3½ times larger than when the Congress authorized the construction of the first biologics standards building in 1956. The increasingly rapid development of biological products and transition from laboratory findings to end products, particularly in the area of viral research, have put a severe strain on the Division's present space resources for research and for control testing. Laboratory testing space, including quarters for experimental animals, is already inadequate; for example, monkeys required for new programs in live poliovirus and measles vaccines are currently housed in borrowed space. In addition, the increased volume and complexity of biological products which require a variety of temperatures for proper preservation have created an acute shortage of cold-storage space.

Agents for immunization against measles—considered a possibility by 1963 or 1964 a year ago—now appear likely to become a reality in 1962. The possibility of immunization against hepatitis has already appeared on the horizon, and research and development of a vaccine to combat this widespread disease is expected to move rapidly. Biologicals directed against measles and infectious hepatitis would need to be controlled as vigorously as poliomyelitis vaccine is at present. The inherent dangers associated with these potentially severe diseases leave no room for control measures which are not based on facts accumulated in the Biologics Standards Division's own laboratories.

Additional laboratory research facilities must be provided. These will be necessary to carry out our legislative responsibilities to obtain the basic information on which to build accurate and sensitive tests on virus vaccines with respect to our standards; and to assure constant checking, altering, and improving of existing tests, as well as developing new tests.

The proposed building would be similar in size and general design to the present biologics standards building. It will have a total net usable area of approximately 41,000 square feet for office, laboratory, or animal holding use. In order to obtain this net usable area, a total gross area of the building would be about 90,000 square feet. The total cost of planning and construction is estimated at $4,650,000. The minimum requirements through 1963 are estimated at $350,000. This amount would provide for soil testing and surveys, awarding of the architectural-engineering contract, and would provide for associated printing, reproduction, supervision, miscellaneous costs and contingencies. Of this total, $200,000 is proposed to be derived in 1962 through use of funds appropriated for "Construction of library facilities."

CANCER RESEARCH FACILITY ($10,280,000)

The research building envisaged would permit implementation of plans developed with consultants during the past year to expand and consolidate the intramural and extramural components of the collaborative research programs of the National Cancer Institute in chemotherapy, development of test procedures, and environmental factors in cancer causation. A building to satisfy such an action program would be composed of approximately two-thirds laboratory space and one-third program management space. The tentative estimated cost of this structure will approximate $10,980,000 in total. Congress provided $700,000 in 1961 for planning and design which leaves a requirement of $10,280,000.

This multistoried structure will provide laboratory and office space for National Cancer Institute research programs. It will be architecturally compatible with existing NIH buildings. It will be located in the southwest portion of the reservation in a building complex that will also include the mental health-neurology laboratory building.

Completion of plans is scheduled for February 1963, and construction is expected to be complete by December 1965.

The first two projects that I have described are for the programs of the Bureau of State Services. The remaining six projects are for the National Institutes of Health. Here today and available to answer any questions are officials from both these Bureaus: Dr. Shannon, Director of the National Institutes of Health; Dr. Anderson, Deputy Chief of the Bureau of State Services; Mr. McCallum, Chief of the Division of Water Supply and Pollution Control; and Dr. Smith, Chief of the Communicable Disease Center.

Mr. Doran. Mr. Chairman and members of the committee, the appropriation, "Buildings and facilities," finances a number of the major construction projects of the Public Health Service. The estimate of $27 million for 1963 is to provide funds for the following eight projects:

CONSTRUCTION PROJECTS

Equipment for expanded facilities at the Communicable Disease Center, and renovation of certain existing space, $3,200,000;

Construction of two regional water pollution control laboratories, $4 million;

Additional planning and construction for the National Institutes of Health animal farm, $2,120,000;

Extension of utility systems at the National Institutes of Health, $4,850,000;

Modification and extension of Building No. 12, at the National Institutes of Health, $1,800,000;

Planning and construction of laboratory facilities in Puerto Rico, $600,000;

Planning for construction of an annex to the biologics standards building, $150,000; and

Construction of the cancer research facility, $10,280,000.

Two projects are for programs of the Bureau of State Services and six are for the National Institutes of Health. Representatives of both bureaus are present for the purpose of answering such questions as the committee may wish to ask. With your permission I would like to refer questions on the first item of $3,200,000 to Dr. Smith, Chief of the Communicable Disease Center.

1963 REQUEST COMPARED WITH 1962 APPROPRIATION

Mr. Fogarty. The appropriation for 1962 is $18,230,000, and the request for 1963 is $27 million, or an increase of $8,770,000. Have any reserves been set up that will slow up any of these projects this year?

Mr. DORAN. No reserves that will slow up progress, Mr. Chairman. There is a reserve of $10 million on the Communicable Disease Center, but we will be able to go as far as we could with the money available. We have sufficient money for the planning.

COMMUNICABLE DISEASE CENTER

Mr. FOGARTY. Now we shall take each in order as they appear in the budget. The first one is the Communicable Disease Center. We had a pretty thorough explanation last year so we shall put the justifications in the record. Tell us why you are back here asking for $3,200,000, when you told us last year that the 1962 appropriation would complete it.

(The justifications follows:)

COMMUNICABLE DISEASE CENTER

1963 appropriation estimate, $3,200,000

Funds were appropriated in 1962 to expand by 200,958 net square feet the CDC facilities located on Clifton Road in Atlanta, Ga., and to provide an offsite animal breeding and holding facility on an 80-acre site near Lawrenceville, Ga., of which 65,886 net square feet will be required for small animals.

This budget provides for essential equipment needed for efficient utilization of the expanded facilities and for reutilization of 31,407 net square feet of existing space by relocation of certain laboratories as contemplated by the original architectural design.

I. Scientific equipment

The Communicable Disease Center buildings are designed around basic principles of safety isolation for the protection of employees and the public. Laboratory work on a specific pathogen must be kept completely isolated from other work to prevent crossinfection which could both involve people and lead to false and misleading results from time-consuming and expensive experiements. The new facilities will reflect this isolation principle.

Although all existing scientific equipment in usable and transportable condition in present temporary facilities will be reutilized within the new facilities, it is mandatory that up-to-date conventional scientific equipment be provided in order to make optimum use of the additional space. High usage conventional equipment, such as microscopes, water baths, incubators, refrigerators, and centrifuges, cannot be shared between exepriments or laboratories without violating the isolation principle.

Many items of highly specialized scientific equipment, however, such as an electron microscope, multichannel and amino acid analyser, electro-encephalograph, neutron activator, and certain specialized spectrophotometers will be shared to the maximum and accordingly purchased in very limited numbers Much of this equipment is very difficult to move because of size and complexity. Also building design often becomes involved in order to protect the equipment from vibration and stray electrical-magnetic fields. For these reasons, this specialized scientific equipment will be set up more or less permanently at various strategic locations for multiactivity use.

II. Cages and service equipment

The new CDC animal building is designed to meet the basic safety principle—isolation. Animals under experiment require isolation and individual experiments must be isolated one from another. The animal experimental facilities of the new building provide for the isolation of experiments; an increase in the number of cages is required to provide the isolation for the animals.

Cages in the animal rooms must be washed and sterilized on a regular and frequent basis, normally once each week. Otherwise, a hard chemical deposit is formed which resists machine washing and must be removed manually with strong acid, an expensive and hazardous process.

Animal cages now in use are either stainless steel or galvanized wire. The new animal building has a central cage washing area with machines to process stainless steel cages. Experience has shown that stainless steel cages resist the strong acids of animal waste products and withstand well the mechanical-thermal stresses induced by frequent sterilizing and cleaning. For these reasons and the fact that galvanized cages have a life expectancy of only 2 to 3 years in contrast to an indefinite life expectancy of stainless steel, the latter type cages will be used in the new animal building.

Funds are included in this budget for the purchase of steel cages for replacement of galvanized wire cages and to provide for cages in transit to and from the wash area so that experimental cages can be washed and sterilized each week. Other accessory service equipment, such as animal cage racks, carts, bins, discard pans, etc., will be needed to support the new animal breeding and holding facility.

III. Renovation costs of existing space

A total of 31,407 net square feet of existing space now being used for animals will be renovated and prepared for reutilization for laboratories upon completion of additions at the center. Renovation of this space will consist of replacing floor cover where damaged, rearranging certain partitions, supplementing lighting and electrical service, installing controlled temperature rooms and walkins, modifying certain aspects of the air-conditioning and ventilation systems, as well as painting where needed.

The original architectural design contemplated the possibility of this renovation and no major structural change is necessary. Through this foresight, basic electrical, plumbing, and air-conditioning services required for laboratories are already provided.

IV. Built-in equipment to be placed in renovated space

The 31,407 net square feet of space to be renovated must be equipped with the permanent built-in laboratory equipment at the time of renovation and conversion for laboratory use. In addition to approximately 2,093 linear feet of laboratory benchwork, this area will require a considerable number of biological safety cabinets, chemical fume hoods, and laboratory steam autoclaves.

V. Other equipment

The new facilities will provide for increased functional space at the center. They will also include a warehouse of minimum space which must be used as effectively as possible. Items such as fork lifts, pallets, shelving, and other warehousing equipment must be provided for the efficient handling of carloads of laboratory glassware, bales of animal bedding, chemicals, cylinders of compressed gases, and a variety of laboratory and office supplies.

Modern maintenance and equipment development shops are being provided to support the center and its scientific work. These shops must be capable of repairing a voluminous number and variety of built-in, highly complex, and expensive items of scientific equipment as well as to develop specialized equipment not readily available from commercial sources. The safety of people and the quality of success of experiments depend on prompt and complete shop service.

Seats, motion picture projection, and sound equipment must be provided for the new 500-seat auditorium.

Two special air-conditioned temperature-controlled trailers, designed to carry specific pathogen free animals from the breeding and holding facilities at Lawrenceville to the laboratories at the center, together with a prime mover, must be provided. Prompt delivery of 2-day-old mice, for example, in quantities is very important because of length of time available for optimum experimentation.

A varied assortment of equipment such as chairs, door number plates, and cafeteria dining room equipment is required to make maximum use of the facilities provided.

A summary of estimates by category is as follows:

I. Scientific equipment	$767, 280
II. Cage and service equipment	1, 518, 800
III. Renovation cost of existing space	314, 070
IV. Built-in equipment to be placed in renovated space	313, 325
V. Other equipment	286, 525
Grand total	3, 200, 000

PROPOSED USE OF 1963 FUNDS

Dr. SMITH. We are asking this year for only equipment for refurbishing the space we are going to move out of. The statement last year should have been that this would complete our construction.

Mr. FOGARTY. This $3.2 million will give you all the equipment and furnishings and allow you to open up? That is all you need?

Dr. SMITH. Yes, sir.

Mr. LAIRD. How does this relate to the old facility?

Dr. SMITH. When the new CDC building was built, it was built with air conditioning and other lab accouterments in our present animal space, with the thought that this would eventually become laboratory space. The present request includes transforming this present animal space to lab space, and for new equipment for the expansion.

Mr. FOGARTY. It was found to be too small when it was completed?

Dr. SMITH. Yes, sir.

Mr. FOGARTY. It took about 10 years to get construction started, didn't it?

Dr. SMITH. Yes, sir.

Mr. FOGARTY. What is the current status of actual construction? Is the construction complete?

Dr. SMITH. No, sir. Final completion of the drawings for the Clifton Road site, the Emory site will be done on July 26 of this year.

Mr. FOGARTY. How is that going to be expanded?

Dr. SMITH. It is essentially adding an animal building and warehouse in the middle of the facility with a wing going out from the main building on the left as you look at it, and an auditorium complex on the right.

Mr. FOGARTY. The $3.2 million will take care of everything for 1963?

Dr. SMITH. Yes, sir.

Mr. FOGARTY. Is that what you asked for?

Dr. SMITH. That is what I asked for; yes.

Mr. FOGARTY. So you have no further problems? You will not have to come back next year asking for more?

Dr. SMITH. I think this will solve our needs for now.

WATER POLLUTION CONTROL LABORATORIES

Mr. FOGARTY. You are asking for $4 million for water pollution control laboratories. You received a supplemental of $1.6 million for 1962. What was the supplemental for?

Mr. KELLY. Acquisition of land and plans and specifications for seven laboratories, Mr. Chairman.

Mr. FOGARTY. What is the status of that?

Mr. KELLY. We have just gotten authority to award the architect's contract for two of those—one in Oklahoma and one in Oregon.

Mr. FOGARTY. What happened to the other five?

Mr. KELLY. There has not yet been a site selection. They are in the process of evaluating sites.

Mr. FOGARTY. They have been in that process for quite some time, have they not? Somebody certainly has been spending a lot of time on that.

Mr. McCallum. We have been planning the laboratories along with implementation of new authority and amendments which were passed last year. We are planning to develop the laboratory program along with these other new workloads.

Mr. Fogarty. Congress may have something to say about that, too. We assumed that when we voted for $1.6 million it was for seven laboratories in seven parts of the country. We might expect that you will start all seven in 1963.

What would prevent your doing that in 1963 if you had the funds?

Mr. McCallum. I think it could be done, sir.

Mr. Fogarty. You still think there should be seven laboratories in accordance with the original plan?

Mr. McCallum. I think to carry out the authority of the 1956 act and the 1961 amendments, certainly we will need these seven laboratories when we get the program in full gear.

Mr. Fogarty. Is there any reason the sites could not be selected so we could start construction of all of them in 1963?

Mr. McCallum. We have a group of experts now going around the country looking at the sites which have been proposed.

Mr. Fogarty. When will they report? Give me an approximation.

Mr. McCallum. About the 1st of March.

Mr. Kelly. I think there is no question but what we intend to proceed with the selection of sites and the planning of all seven laboratories. The question is, how many actually will be ready to start construction in 1963? I do not know. We did feel these two would be ready to start construction in 1963.

AMOUNT OF REQUEST TO DEPARTMENT AND BUREAU OF THE BUDGET

Mr. Fogarty. What did you ask the Bureau of the Budget for—four laboratories?

Mr. Kelly. Yes, sir.

Mr. Fogarty. How much money?

Mr. Kelly. $8 million.

Mr. Fogarty. Just double this?

Mr. Kelly. That is right.

Mr. Fogarty. What did the water pollution people ask the Department for?

Mr. Kelly. They agreed with us on the four we submitted to the Budget Bureau. I think at the time they prepared their initial request we had not obtained the planning funds for all seven, so I am not sure they asked for even as many as the four.

After we had received the supplemental for planning funds, we went over it with them and they agreed with us to submit a request for four in the 1963 estimate.

Mr. Fogarty. This budget allows for only two laboratories in 1963. Is that right? Seven were authorized, and we gave you $1.6 million in 1962 to get seven of these started.

DESCRIPTION OF FACILITIES

Will you described the type of facility you are planning and what activities will be carried out after they are in operation?

Mr. McCallum. The facility will be a laboratory to do some of the work we are now doing in the temporary laboratory, some of the types of work we are doing in Cincinnati to back up our technical services program. It will be a permanent facility, a two-story structure, and the design will blend in with the type of architecture in the area. It will be tailored to do the particular types of work that are peculiar to water pollution problems in those parts of the country in which these laboratories are located, as stipulated in the act.

SELECTION OF AREAS FOR LABORATORIES

Mr. Fogarty. Refresh my memory about the act insofar as selection of areas in concerned.

Mr. McCallum. The act provided for seven laboratories, but not limited to seven. It specifies the Northeast section of the country, the Middle Atlantic, Southeast, Southwest, Middle West, Pacific Northwest, and the State of Alaska. It further specifies they should be located in places that will facilitate working with universities and schools of higher learning at which graduate work in these fields might be taught.

Mr. Fogarty. Are there any additional laboratories planned to be financed after 1963?

Mr. Kelly. Yes, sir.

Mr. McCallum. Yes, sir. We plan to blend this in with the further development program.

Mr. Fogarty. The other five?

Mr. McCallum. It would mean going ahead with the other five subsequent to this fiscal year.

ANIMAL FARM

Mr. Fogarty. You are asking for $2,120,000 for the Institutes' animal farm. Dr. Shannon, did you not say this would be completed in 1962?

Dr. Shannon. No, sir. The total program is about a 5- or 6-year program. It will ultimately cost something like $12 million to $12.5 million. This is the second phase during which some of the temporary structures that have been developed on an emergency basis will begin to be replaced by permanent structures.

Mr. Fogarty. The reason I ask that is that it was brought to my attention that in last year's budget we had a request, which was granted, for this project and in the column "Appropriations required to complete," there was a zero.

Mr. Kelly. In the public works schedule, this may have been true. This may have been treated as one project. I am certain the justifications we submitted to you referred to it as phase 1 of a larger program.

We have contemplated a program in the neighborhood of $12 million ever since we acquired the site.

Mr. Fogarty. Has everything worked out all right so far as the site is concerned?

Dr. Shannon. That is going very well, sir. We have acquired the site.

Mr. Fogarty. You have enough land?

Dr. Shannon. Yes, sir, except for one very small parcel we hope to acquire.

Mr. FOGARTY. So you are all set to go ahead now?

Dr. SHANNON. I believe so. It has been carried out very well. What we are doing now is building permanent structures to balance our requirements at Bethesda so that we can move some of the things which are more suitable to offsite development.

Mr. FOGARTY. What is actually completed?

Dr. SHANNON. No permanent structure is completed.

Mr. FOGARTY. What about the plans and specifications for the buildings you plan to build there? Have you completed that?

Dr. SHANNON. There are three phases generally speaking. The first was to develop temporary structures so that certain of the large animals could immediately be moved from the Casey Farm to NIH property. This project is largely completed.

Phase 2, which is to begin the permanent construction, will not be completed until February of 1964 according to our schedule. The program we envisage for this phase is the establishment of the first of a series of permanent quarters which will take care of the farm-type animals—the large animals, kennel facilities for dogs, cats, and the like—and certain facilities that can be moved from the Bethesda area so as to free space for work closely related to our laboratory operations.

We are really just at the beginning of the permanent development of the facility.

UTILITIES EXTENSION

Mr. FOGARTY. The next item is $4,850,000 for construction of master utilities extension at NIH for which you received $645,000 in planning funds last year. What do you plan there?

Dr. SHANNON. During the period of development, from the late forties through the fifties, it became perfectly obvious that the whole site should be reengineered. Planning funds were made available last year. The only modification in our request this year is that the utility construction funds needed for the cancer and mental health-neurology facilities are included in the building funds for those two buildings and have been subtracted from the funds originally requested for the central utility system.

Mr. FOGARTY. Is that why you have split financing in this project? I was wondering why it was not all in one appropriation.

Dr. SHANNON. It was thought reasonable to include the utilities costs in the construction accounts for those buildings. This $4,850,000 is to take care of the master utility construction at NIH not included in the NCI-NINDB building budget.

Mr. FOGARTY. It is not usually done that way, is it? You do not usually figure the cost of expanding an overall utility system in the cost of an individual building.

Dr. SHANNON. Each building construction project has had the utility cost built into it up to the present time. The departure from past convention in this instance is to show how utility costs for the two new buildings relate to the total cost of the master utility system.

Mr. FOGARTY. How big a project is this for the reservation as a whole? I refer to the utilities problem involved. Will it be a 2-year or 3-year project?

Dr. SHANNON. This will be to lay the electrical distribution systems and other utility lines which we feel will satisfy any requirement.

Mr. Kelly. The total cost of the project is estimated at $9,561,000. Part of it is included in other projects. The estimate is that the construction will be completed in January of 1965.

Mr. Fogarty. That is quite a bit off from what you estimated last year.

Mr. Kelly. I think the figure we gave you last year, if I recall correctly, was the result of a survey made by the Public Buildings Administration of the total utilities system. In order to provide adequate facilities for the existing reservation, it was estimated at $7.4 million.

Mr. Fogarty. $6.8 million is the figure I had in mind. Now it is $9.5 million.

Mr. Kelly. The additional costs are related to additional facilities. Let me explain how we have handled air conditioning, and so forth.

As we have added buildings to the reservation, we had included in the cost of new buildings the cost of extending the size of the powerplant and adding new compressors in order to provide the additional capacity to cover the additional building; and these costs which are included in the cancer building and the neurology building are very similar to the costs which we have been incurring as we have increased our capacity as we built additional buildings.

EXTENSION OF COMPUTER BUILDING

Mr. Fogarty. You are asking for $1.8 million for an extension of building 12 at NIH. What building is this?

Dr. Shannon. This is a two-story structure which houses the computer facility and some laboratory animals. Alteration and extension will provide space for associated staff and will enable us to bring those functions on the reservation that are closely dependent on the computer to a single site.

Mr. Fogarty. You are talking about a computer or a computer system?

Dr. Shannon. It is really a computer system. It includes a digital computer and related equipment required both for processing administrative data and for research applications.

Mr. Fogarty. That will perhaps grow in the future, will it not?

Dr. Shannon. We have just expanded the system in the course of the past year. Much of our future effort will be to provide the ancillary facilities, in the central facility and in individual laboratories, to utilize that capacity effectively. I think the development of computers at NIH will include devices to convert the output of laboratory equipment so that it can be channeled directly to the central computers, plus the acquisition of small laboratory-type computers to be used by investigators for specific areas of investigation as adjuncts to the central key computer, which has a very large capacity.

RENTAL OF SPACE FOR NIH

Mr. Fogarty. How much space are you now renting in the Washington area?

Mr. Seggel. 76,230 square feet.

Mr. Fogarty. How many people are there in rented space?

Mr. SEGGEL. 957 in rented space.

Mr. FOGARTY. How much rent are you paying?

Mr. SEGGEL. $677,000 is being paid by the Government. A great part of this is paid by GSA and is not in our budget, but in the budget of the GSA. It all is of course a charge to the Government, however.

UTILIZATION OF COMPUTER SYSTEM

Mr. LAIRD. What utilization are you making of the computer system? What percentage of the time is it used?

Dr. SHANNON. I am not sure. We are now in the process of making changes in the system and refining our programs. I would guess that the central system is used perhaps the equivalent of 8 hours a day at the present time. This system was installed with the idea that our needs will grow to a point when it would be used 16 or 18 hours a day.

Mr. LAIRD. In order to make it pay, you have to use it at least that much.

Dr. SHANNON. That is probably right in most instances.

Mr. LAIRD. Are you contracting it out?

Dr. SHANNON. It has been installed so recently that we have not completed our own programing as yet.

Mr. LAIRD. The contemplated use next year is for only 8 hours a day?

Dr. SHANNON. At the present time it is the equivalent of about 8 hours a day; I think by the end of next year it will be in use a minimum of 16 to 18 hours.

Mr. LAIRD. Could you supply for the record in connection with this justification on building 12—referring to the modification—the type of computer you have, the number of hours you are presently using it, and the program for next fiscal year?

Dr. SHANNON. I shall be glad to.

(The requested information follows:)

THE USE OF THE CENTRAL COMPUTER AT NIH

In November 1961, NIH installed a large digital computer that is capable of handling both administrative and research applications. The new computer, a Honeywell 800, has a productive capacity that is far greater than that of the medium range computer which has been in use at NIH since 1958. NIH is now the process of transferring the data processing workload to the H–800 computer, which is being operated in excess of one shift per day. Much of the current operation is concerned with the development and refinement of programs. Transition to the new computer and the addition of major new programs are expected to be accomplished during this fiscal year.

There is significant backlog of research problems to be programed, and the potential value of the computer to the research program is far beyond the current level of operation. However, the shortage of skilled programers and other technical personnel is a major limiting factor in achieving rapid progress.

During 1963, it is anticipated that all continuing programs will be placed on the new computer, and that it will operate at approximately the two-shift level, accommodating an increased workload by improvements in programing techniques and operating skills, and at the same time providing opportunities for the individual scientists to make use of the computer on an open shop basis.

The computer program in 1963 will include all administrative applications previously programed for the computer, plus major processing of research grants data, and an expanding research load that will make up from 60 to 70 percent of the total computer program. Studies will be completed of equipment needed to convert the output from some types of laboratory equipment to a form acceptable to the computer, thus bringing the computer closer to the scientist.

Biomedical applications to the computer are expected to increase rapidly as programing skills improve, and will include both small and large problems. However, the use of the computer in medical research is in the early stages of development, and several years of concerted effort by highly skilled technical and professional personnel will be necessary before NIH scientists can have the full benefits of a powerful computer.

In order to achieve the increase in productive use of the computer on research problems, it is essential to provide increases in the associated staffs, and to provide convenient facilities for major users. The associated staffs are to include mathematician-programers, scientific information personnel, and other administrative and technical information groups having day-to-day requirements for use of the computer.

EXPANSION OF PUERTO RICAN FACILITIES

Mr. FOGARTY. I see that you are finally budgeting $600,000 for a much-needed extension of facilities in Puerto Rico.

Dr. SHANNON. Yes, sir.

Mr. FOGARTY. Will you tell us where these will be located, why, and describe the facilities you plan.

Dr. SHANNON. As you know, Mr. Chairman, we have been doing work there for some 4 years. This has been a very important adjunct to other work we have been doing. It involves the study of new-born monkeys. This is for the purpose of studying monkeys whose normal development has been interfered with in the last 2 or 3 weeks of pregnancy in a variety of ways such as by the deprivation of oxygen.

This project is now on a quarantine station at the Public Health Station at San Juan. The proposal is to move it out to the University, where a completely new medical facility is being constructed in association with other Government-sponsored groups, such as the Atomic Energy Commission.

This collaborative study is being carried on at that point. Although we provide the key personnel, there are a number of people from the university who come there for varying periods of time to study monkeys in a situation in which they can predict when they will have new-born monkeys.

It is expected that, as the program develops, one of the key developments will be that we will make available to university workers a variety of experimental situations which are otherwise quite impossible to obtain.

Mr. FOGARTY. You had one island off the main island of Puerto Rico inhabited by this special type of monkey.

Dr. SHANNON. One island is set up as an observation-post island with a population of about 300 to 400 monkeys. This is to study the normal development of the monkey and some of the social aspects of various groups. It is of interest to the health group because it makes possible certain necessary, fundamental observations.

We also have an agreement for the use of two other small islands.

Mr. FOGARTY. I have taken the time to go and take a look at the work being done in Puerto Rico. I think it is one of the most worthwhile projects we have in this entire perinatal field.

I wasn't sold on the idea when I was down there that it should be moved from the Quarantine Service. I had an idea maybe you ought to be buying some adjacent land. I know you have been down there and I guess Dr. Masland did agree with you regarding the site, a year ago.

Dr. SHANNON. Yes, Mr. Fogarty. The problem is that the whole medical school now is quite close but is in the process of being moved out. Actually the city of San Juan has reprogramed the total use of that area so that it would be impossible to acquire.

ADEQUACY OF FUNDS FOR PUERTO RICAN PROJECT

Mr. FOGARTY. Are you satisfied that this amount is sufficient to allow for the expansion you would like to see down there?

Dr. SHANNON. Mr. Fogarty, we hope it will be.

Mr. FOGARTY. You must have some doubts.

Dr. SHANNON. That, as we figured it, was the requirement. As I recall, our calculation came to $40 per square foot, for a total request of $800,000. This was reviewed by the Bureau of the Budget subsequently. When they investigated the cost of building down there they recommended to us that what we wanted could be obtained at $30 per square foot, and the request was consequently cut from $800,000 to $600,000.

I think they had better information than we do on building costs. I hope they are right. If they are right, this would be——

Mr. FOGARTY. There are all types of construction, of course, in places like Puerto Rico. There is the real cheap type, as we have seen; and the halfway type; and the good construction. I hope, if we are going to build something there, it is worthwhile and won't fall down in 4 or 5 years.

Dr. SHANNON. They are contemplating permanent construction. The AEC built a building there and the Bureau of the Budget has based its cost estimates on this experience. We are hoping of course that it has not changed significantly since that time.

ACQUISITION OF ADDITIONAL ISLANDS

Mr. FOGARTY. When we were down there last time we were told you had acquired or had leased two other islands on the opposite side of Puerto Rico.

Dr. SHANNON. Yes, sir.

Mr. FOGARTY. What has happened with them?

Dr. SHANNON. This was mainly to preserve these islands for future use because the Puerto Rican Government was in the process of disposing of them. They have a series, I think, of about eight offshore islands. They would make them available to us if we wished to take them. And while we were unwilling to take them right away, we would like to place them in reserve for future development.

So this is mainly for future programs. Had we been unwilling to do that, they would have disposed of them.

SCHISTOSOMIASIS RESEARCH IN PUERTO RICO

Mr. FOGARTY. You also have been doing some good work on schistosomiasis in Puerto Rico. That is under the CDC. Is that right?

Dr. SHANNON. Yes.

Mr. FOGARTY. The fact is that Puerto Rico is a long way toward eradicating it because of this work that has been done by Dr. Ferguson from the Communicable Disease Center and a few others working with him. Is that right, Dr. Smith?

Dr. **Smith.** Yes, sir.

Mr. **Fogarty.** That involved studying the habits of fish, growing snails, and things people could poke fun at like they do on a lot of research projects. But the facts are, whatever he did in basic research down there has turned out to be beneficial. We are getting on top of that problem in Puerto Rico, aren't we?

Dr. **Shannon.** We are in Puerto Rico, yes, sir.

Mr. **Fogarty.** I think I read in the paper the other day that about half of Egypt has this problem; that when the Aswan Dam is completed it is going to be a bigger problem in areas like Egypt because of the irrigation of additional land.

I have been told that in Brazil it is one of the biggest health problems they have, especially in the northeastern section of Brazil. So we could do a lot in this area because of this research work carried on in Puerto Rico. Is that a fair statement?

Dr. **Shannon.** Yes, sir, very fair. We are supporting work in schistosomiasis not only through the use of NIH funds but also by grants from the World Health Organization. Schistosomiasis is perhaps second only to malaria on a worldwide basis, and is really one of the most important diseases. The interesting thing here is that after one develops the Sahara and attempts to solve some of the nutritional problems, one runs into the problems of schistosomiasis through the development of irrigation systems.

So we have brought a completely new disease into the area.

VALUE OF MONKEYS IN RESEARCH

Mr. **Fogarty.** Will you develop for the record a statement on the value of monkeys in research.

Dr. **Shannon.** Yes, sir.

(The requested information follows:)

The Value of Monkeys in Behavioral and Perinatal Studies

GENERAL STATEMENT

Subhuman primates have played an important role in the progress of medical research in this country. The great advances of recent years against poliomyelitis, tuberculosis, mental disease, malaria, yellow fever, measles, and other diseases would not have been possible without their experimental use. The anatomy, physiology, learning processes, and reactions to drugs and infectious agents of the various subhuman primates make them indispensible laboratory test animals in investigations aimed at alleviating human disease.

The need for subhuman primates in present day research has substantially increased and it is apparent that future requirements will become larger. Many areas of research have advanced to positions requiring experimental animals that more nearly approximate human physiology than do the more available laboratory subjects such as mouse, rat, hamster, or guinea pig. Subhuman primates are suitable counterparts to man for studies in reproduction, psychology and behavior, and cardiovascular and other body systems. Because of their similarity to man, they are valuable for studies of disease susceptibility, disease processes, and disease states. Primates have a relatively long lifespan, hence they are useful for long-term study of chronic diseases and of the aging process. Also, methods of breeding and keeping certain primates such as monkeys are rapidly being developed so that the possibility of maintaining them under laboratory conditions over their entire lifespan can be foreseen. This will further increase the broad opportunities for productive research that primates afford.

THE VALUE OF MONKEYS FOR RESEARCH IN MENTAL HEALTH

The scientific study of the problems related to mental health and illness involves not only specific investigation of the mental diseases and disorders but also study of the human biological and psychological characteristics that are involved in these disorders. As in all medical research, new discoveries as to the causes of illness and methods of treatment and prevention ordinarily come from developments in basic research concerned with the normal processes of life. This is no less true for mental illness than for such research areas as infectious diseases, cardiovascular disorders, and cancer.

The mental disorders are unique in that they characteristically involve a more or less serious disturbance in psychological processes and behavior. In the psychoses, characteristically, the patient's emotional life, his thinking, his capacity to learn and profit by experience, and his ability to care for himself and his family are disturbed or destroyed. To understand these disorders, it is necessary to investigate the structure and functioning of the central nervous system, of the endocrine system and other bodily processes; and to study the ways in which life experiences affect the human being's development, growth, and normal maturation.

In no other field of research can it be more truly said that "the proper study of mankind is man," but in no other field of research is it as difficult to investigate directly in the human being many of the biological and behavioral processes which relate to the illness at issue. For many reasons, including our common concern for human welfare, it is impossible to carry out many experimental procedures of a biological and a behavioral kind directly on human beings. For these reasons it is necessary that another animal form, as close to human beings in structure and function as possible, be utilized to give us information that may find its application in improving the health of man.

Of all animal forms the primates—monkeys and the larger apes—are closest to man in the structure of the nervous system and in behavior. In the brain of man can be found structures which resemble both the primitive, reptilian brain and the lower mammalian brain as well as the large forebrain or higher mammalian brain. It is this latter structure which composes the bulk of the human brain and which is responsible for man's intellectual attainments. Among the animals below man, it is only in the primates that this higher mammalian brain has developed to anything like the extent that it has in human beings. It is therefore necessary, in finding out about the structure and function of the human brain, to do many of the necessary physiological and anatomical studies on primates. The larger apes—chimpanzees, gorillas, and the like—would be better for this than monkeys. But because of their expense, longer life span, and danger in handling, they are less useful laboratory animals for many kinds of studies than are the various species of monkeys. The monkey has a brain which is far different in structure from that of cats, dogs, rats, and guinea pigs, and it is an essential aid, for this reason, in the investigation of problems of the central nervous system.

In behavior too, though the gap between monkey and man is large, the monkey comes closer to man than do lower animal forms. Research on the monkey in recent years has demonstrated the importance of motivations which cannot be reduced to such primary physiological needs as hunger, sex, thirst, and pain. Careful study of monkeys has clearly shown the importance of an exploratory drive, of a manipulative drive, of the need for tactual or skin comfort, of the need for an opportunity to play, and of needs for affection. An animal with these capacities is an important asset in trying to understand the complicated functioning of human beings.

It is necessary to point out that results of studies on monekys cannot be translated directly into conclusions about human beings. The differences between monkeys and humans are too great for this. But the results of studies on monkeys can and have provided many new leads for investigation at the human level. Conversely, studies of human beings, both healthy and sick, have raised problems which could then be taken into the laboratory and studied in more specific and conclusive fashion with monkeys as the subjects. The most profitable research course is to study both humans and monkeys side by side or alternately so that what is learned at one level can be tested at the other, and the knowledge from both lines of experimentation can be tested and made more explicit.

For example, the study of monkeys has enabled us, through anatomical control and post mortem examination, to pinpoint the locations within the brain which control not only physiological functions but also such experiences as pleasure and pain, which is not readily attainable in humans.

It has provided a means of screening the tranquilizing properties and other effects of certain drugs before clinical application; and has permitted scientists to determine the limits of radiation dosage beyond which there is likely to be human motivational and learning impairment.

Investigations utilizing these animals have contributed valuable data in areas of high altitude and space research, particularly under simulated conditions of isolation and deprivation.

The specific value of monkeys in mental health research can be summarized as follows:

1. Of all animals, the monkey is closest to man in brain structure, brain formation, and behavier, so that knowledge which is learned from monkeys can be more readily generalized to man than can the results of study of other animal forms.
2. Monkeys can be procured at will at smaller expense than other animals.
3. Monkeys can be secured in large enough numbers to form sizable homogeneous groups so that research in which the variables are numerous and complex can either be better controlled or statistical methods can be applied to arrive at unambiguous answers.
4. Monkeys can be subjected to psychological and physiological stresses in ways that human beings cannot, and thus the effects of these stresses can be learned. If we need to know the effect on a complicated organism of deprivation of oxygen at birth, or of the loss of contact with the mother during infancy, or the effect of accidental or infectious brain damage, the monkey is a necessary research aid.
5. In the laboratory the monkey can be given a controlled developmental history and a controlled environment to see what effect these conditions have on behavior.
6. The developmental span of the monkey is comparatively short so that his development from birth to maturity can be studied in 2 to 3 years. In effect, by the use of the monkey, man's whole life history can be collapsed into a relatively brief period. Longitudinal studies on human development may well continue beyond the life span of the original investigators.
7. Post mortem studies on monkeys, where these are essential to a specific investigation, can be carried out at will. For example, stomach ulcers have been produced in monkeys through the application of continued psychological stress, and the extent and nature of these lesions can be accurately determined through histological methods as cannot be done with human beings.

It is fair to say that our knowledge of the human nervous system, of human emotion, motivation, and cognition, and of the effects of stress have been immeasurably advanced through the availability of monkeys as a laboratory animal. The contribution of this animal form in the field of mental health research is no less important than was its contribution to the understanding and prevention of poliomyelitis.

THE VALUE OF MONKEYS FOR RESEARCH IN PERINATAL PHYSIOLOGY

The primary mission of the Laboratory of Perinatal Physiology in Puerto Rico is to conduct research concerned with (1) reproduction and (2) developmental aspects of the nervous system. Its program is predicated on the fact that many neurological disorders stem from adverse factors acting upon the developing individual during prenatal, natal, and early postnatal life. Many of these cannot be investigated scientifically in the human subject; many cannot be investigated satisfactorily in laboratory animals other than the monkey. The monkey, and especially *Macaca mulatta*, is an ideal animal for such investigations because its gestational physiology is similar to that of the human being, and because many years of work have gone into elucidating the functioning of its nervous system. In this animal one can reproduce experimentally other factors suspected or known to produce perinatal disease in the human.

During the 5 years since the establishment of this laboratory, its scientists have reproduced in monkeys the clinical picture of cerebral palsy and of mental retardation due to neonatal asphyxia. They have made detailed comparisons of the anatomical, physiological, and developmental deviations which result from these noxious factors, and have established norms for physical and physiological development of control and treated animals. The exact neuropathology of neonatal asphyxia is being defined, and is serving to clarify the clinical picture in humans. Promising methods for modifying the deleterious effects of neonatal asphyxia and neonatal jaundice are being explored. New investigations to study the role of uterine contractions in asphyxia are being initiated at this time. The above laboratory investigations are being conducted in San Juan, upon a caged colony of approximately 250 breeding females.

The free-ranging colony on Cayo Santiago, which has now been expanded through the acquisition of two additional small islands off the coast of Puerto Rico is an essential part of the laboratory program in Puerto Rico. The primary purpose is to permit a comparison of the deviations of growth and reproduction produced and observed in the laboratory with those occuring in a natural habitat. It thus provides a colony for observation under optimum natural conditions of normal conception, birth, growth and development, and for control studies for the investigations of this species under laboratory conditions. The island thus serves as a source of monkeys of known age, whose normal performance and development can be predicted, and whose health experience is known.

The recent discovery that these animals in Puerto Rico have not been exposed to many common virus diseases (for example, measles) highlights the unique value of this colony. Tests indicate that this colony has had little if any contact with several widely occurring human viruses. The colony is of particular value to the virologist because of its extreme susceptibility to naturally occurring diseases, and especially as a source of susceptible animals upon which to test suspected infected human material. A few animals from this colony have already been used to test the potency of the new measles vaccine. Attempts to isolate the virus of german measles through the use of these animals are now scheduled.

BIOLOGICS STANDARDS ANNEX

Mr. Fogarty. Tell us about the Biologics Standards Annex. Describe the facility and tell us why it is needed. After all, the Biologics Standards Building is pretty new, isn't it?

Dr. Shannon. The Biologics Standards Building was occupied a year ago last June, actually. It was apparent that this would be inadequate some time ago.

What is happening is that as new biologics are developed the problem of maintenance and control, on a standby basis, does not disappear as an operating cost. I suppose the best example would be the Salk vaccine. We are today still devoting approximately the same amount of space and effort in the control of that vaccine as we were 4 years ago; but meanwhile there has been added the additional problem of the live vaccine, which we predict is going to be a very costly control activity for the next 4 or 5 years.

As one looks at the future, we are already in the developmental phase of a measles vaccine. Most people don't think measles is a particularly serious disease. As a matter of fact, it is not although it does produce some bad side-effects in a substantial number of cases. But this is one of the more important diseases on an international basis. It causes more disability in certain African countries than polio.

In addition to the development of good vaccines—those which we have at the present time—there are other added burdens on the Biologics Standards Division while the previous burdens are not dropping off. Looking further into the future, it is not at all improbable that we shall have the problem of bioantigens for the control of cancer.

So we view the biologics standards activity as being one that will increase with time by having to assume new responsibilities without being able to drop previous tasks.

The thing that is particularly important here is that we now have to study these vaccines to an extent that it was not necessary for any of the bacterial vaccines that were developed in the past. So we feel this space is very urgently needed. We can use this space next year.

CANCER RESEARCH FACILITY

Mr. FOGARTY. You have a request for a new cancer research facility. Is the $10,280,000 which you are requesting your estimate of the full cost of the facility?

Dr. SHANNON. This would be the full cost of the facility, but there are two problems.

Mr. FOGARTY. Does that include equipment?

Dr. SHANNON. This will include equipment; yes, sir.

Mr. SEGGEL. It includes fixed and semifixed equipment built into the building.

Mr. FOGARTY. Just the fixed equipment that goes along with the construction, but not the other?

Mr. SEGGEL. No. That would come along in the operating budget.

Mr. FOGARTY. How much do you estimate that to be?

Dr. SHANNON. The operational equipment?

Mr. FOGARTY. Yes.

Dr. SHANNON. About $2 million or $2.5 million.

PARKING PROBLEM

Mr. FOGARTY. Is this sufficient to complete this building?

Dr. SHANNON. Yes, sir; it is. But I would be unfair if I did not point out that this does not resolve the parking problem and it does not resolve the problem of eating facilities, which we put aside for the moment.

Mr. FOGARTY. How far from the main building is this going to be located? Can you show us on that picture up there?

Dr. SHANNON. Up in the lefthand corner.

Mr. Kelly points out that what we had asked for initially was $12 million, which included $1.7 million for automobile parking; but this has been taken out and it is not in at the present time. We have discussed with the Bureau of the Budget how this can be arranged as a separate item.

Mr. FOGARTY. We are going to have to do something about the parking problem. Can you point out to us where that is going to be located?

Mr. SEGGEL. It is back behind the Biologics Standards Building.

Mr. FOGARTY. How about the cafeteria facilities in the research center? Is that big enough to take care of all your needs? We did something about that last year.

Dr. SHANNON. We have had difficulty during the past year on costs of operating the Clinical Center Cafeteria and, as a consequence, we have adjusted the prices. We have no current plans for the utilization of the funds that were made available to expand this cafeteria. I am not quite certain that this will be needed. We have the feeling that when we reach the full workload in the new cafeteria in the office building, and can look forward to the possibility of new cafeteria facilities in these two new buildings, it may not be necessary to expand the Clinical Center Cafeteria.

NEED FOR A NEW CANCER RESEARCH BUILDING

Mr. Fogarty. Tell us why this new cancer research building is needed. Describe briefly just what you anticipate doing.

Dr. Shannon. Its need is the result of two programs. One, the environmental carcinogenesis program; the other, cancer chemotherapy. These have been housed in a variety of spaces, both rental and on the reservation. In view of the development of a more active program in the environmental aspects of carcinogenesis, the thought is to bring these two very large programs, which have very heavy service functions, together. This will permit the development of more effective administration of these two important programs.

ENVIRONMENTAL CARCINOGENESIS PROGRAM

Mr. Fogarty. What was this program?

Dr. Shannon. The environmental carcinogenesis program.

Mr. Fogarty. Just tell me a little bit about that. Are you talking about air pollution, or what?

Dr. Shannon. We are not talking about environmental carcinogenesis, viewed as one of several environmental hazards. Rather, the study of the biological basis of carcinogenesis through experimental studies.

Mr. Fogarty. Give me a couple of examples of these products. What do you call them?

Dr. Shannon. Some are aromatic tars, such as benzpyrene, that are purported to come from cigarettes. Others are aromatic compounds that come from incomplete combustion of a variety of fuels. Others are certain aromatic amines in the chemical industry such as those known to cause bladder cancer in man.

Mr. Fogarty. If everybody would stop smoking cigarettes maybe we wouldn't have to build this building.

Dr. Shannon. I have bought myself a filter. I hope it will do me some good.

Mr. Fogarty. I have been told there isn't a filter that has been worth anything yet, in that regard. I think some of your people have said that publicly.

Dr. Shannon. Mr. Fogarty, there has been a large advance in the development of filters. It is quite conceivable that within not too long a period of time it will be possible to filter out materials that have potential carcinogenic action. I think the cigarette companies are doing a great deal of work at the present time.

Mr. Fogarty. Do you think they are doing more than the automobile industry is doing in connection with exhaust fumes?

Dr. Shannon. I would rather let the people from the Bureau of State Services talk about that. I am not too well aware of precisely what they are doing.

Mr. Fogarty. Go ahead. Give me other examples.

Dr. Shannon. The tobacco industry is supporting investigations into the effects on animals of the products of smoking. As I have said, the industry is also attempting to improve cigarette filters.

When it comes to general environmental control, this will be handled by the new Bureau of Environmental Health. But we are developing the fundamental information upon which such control activities can be based. The studies will be both broad and fundamental and thus much more suitable for the Cancer Institute than for the new Bureau of Environmental Health.

PREVENTION OF CARCINOGENS GETTING INTO FOOD

For example, one of the basic problems of the Food and Drug Administration is the need to develop regulations that will prevent the entrance of carcinogens into food. Their primary problem is the inadequacy of the basic information available. For example, are these suspect materials, which are taken into the body in minute quantities, threshold or nonthreshold substances?

If they are nonthreshold substances, this means that as one adds a little bit, on a day-to-day or year-to-year basis, they have a cumulative effect.

On the other hand, if they are threshold substances the body can handle them in minute quantities, and it becomes possible to have a food with carcinogenic materials at a tolerable level.

Mr. FOGARTY. Will you expand on this for the record?

Dr. SHANNON. All right, sir.

(The requested additional statement follows:)

A NEW CANCER RESEARCH FACILITY

A new cancer research facility will permit the National Cancer Institute to house research activities in a manner that will provide for fuller utilization of the complementary strengths inherent in extramural and intramural research programs. Most of the space will be occupied by programs employing collaborative—or engineered—research. This approach is particularly suitable for developmental work in cancer chemotherapy and virology and for field studies in such areas as diagnostic tests and environmental hazards.

At the present time, the institute's collaborative research programs are scattered in six rented buildings in Bethesda and Silver Spring where almost no laboratory space is available. As a result, the effective development and operation of these programs is seriously hampered.

CANCER CHEMOTHERAPY

The National Cancer Institute is heavily committed to a program of research and development aimed at uncovering and bringing into general use drugs that will have significant value in the treatment of cancer. This program is managed and cordinated by the Cancer Chemotherapy National Service Center. All of the clearinghouse activities of the center—such as the dissemination of information on research results, as well as the collection, appraisal, and distribution of a constantly increasing volume of chemicals—will be housed in the new building. Greater utilization of National Institutes of Health computer services and library research facilties and the addition of laboratory space will strengthen this program.

As the chemotherapy program has grown, the staff directing contractual operations has also had to expand in order to keep abreast of the analysis of scientific accomplishments and the designing of protocols for research. The new facility will bring together on National Institutes of Health grounds the program management personnel now scattered in a number of buildings.

In addition, intramural laboratory chemotherapy studies closely related to Service Center activities will be moved from the Clinical Center to the new building.

CANCER VIROLOGY

One of the Institute's most rapidly growing collaborative programs is that concerned with the development of research resources for investigators in virus-cancer research. By providing specialized tools and services that have been in short supply, this program is stimulating and coordinating a nationwide research effort to determine whether or not viruses cause human cancer. The staff of the Virology Research Resources Branch administering this program will be housed in the new building.

FIELD STUDIES

Field Studies research at the National Cancer Institute includes broad investigation of the causes and occurrence of cancer in man, and the development and evaluation of more effective ways of diagnosing and treating cancer. The basic orientation of field-study operations resides in statistical research involving large population groups, the mathematical analysis of data obtained from such studies, and the correlation of this information with basic laboratory studies. Relocation of this activity in the new cancer building will bring it closer to the computer facilities available on the National Institutes of Health reservation.

The new facility will provide space for strengthening Institute research in the important area of environmental cancer hazards. Increased amounts of potential cancer-causing agents in the environment of our urbanized society necessitate an all-out effort to identify environmental factors causing human cancer. Studies on carcinogenesis (causation of cancer) in man utilize information gathered from industrial and environmental situations, from observation of animals in their natural environment, and, where the opportunity arises, from direct investigation in man. These studies are dependent on the rapid exchange of information since they include correlation of epidemilogical knowledge with that derived in the laboratories of scientists of many disciplines. Location of the carcinogenesis studies in the new facility will enable the Institute program to function more efficiently as a clearinghouse for such information.

Through a combination of direct research and research financed by contracts and grants, a solid coordinated attack on the problems of cancer diagnosis is being mounted. To be effective, a program in this area must provide laboratories that can set up many different test procedures and operate them on a substantial scale for long periods. These laboratories should also evaluate new trends, specific leads, and end results. A small central laboratory and offices for the management staff of the diagnostic research program will be located in the new building.

INTRAMURAL RESEARCH

Some intramural nonclinical activities, now handicapped by crowded quarters in the clinical center, will be relocated in the new research facility. This will permit a broadening of research on the biology of cancer and will help meet the need for special laboratories where human and animal tissues can be prepared for electron microscope and other studies.

An Institute activity that is an important step in the research process is the publication of the Journal of the National Cancer Institute. The Journal staff will have quarters in the new building.

Services planned for Institute-wide use, such as conference rooms, mail rooms, central files, and instrument shops, complete the roster of Institute activities to be housed in a new cancer research facility.

FUTURE EXPANSION OF NIH RESEARCH CENTER

Mr. Fogarty. Ever since I have been on the committee, your physical facilities have been inadequate for your needs. Will this request we have before us today put you in really good shape, or are there more facilities that you need now or will need in the near future?

VISITOR HOUSING

Dr. Shannon. There are only a few areas that are not fully taken care of to the best of my judgment. I am not at all sure that all of these will come in as official requests. For example, one of our advisory councils has proposed the development, by private sources, of a more adequate meeting place, with some housing attached, for our advisory groups.

Mr. **Fogarty.** That is getting to be a real big problem, isn't it? How many people do you have coming in here each year? They come in two or three times a year, don't they, many of these committees?

Dr. **Shannon.** In general our councils, study sections, and other advisory groups meet three times a year. In the aggregate, I think the total would be about 500 or 600 individual advisers.

Mr. **Fogarty.** Around 600 three times a year?

Dr. **Shannon.** It is more than that. I would say 800 to 900 three times a year.

Mr. **Laird.** What about those new motels that have been built out there?

Dr. **Shannon.** I started to say that the new motels are taking care of them to a very large extent. If we plan our schedules with the new motels we can arrange quite good housing.

I might say that the pressure for a housing facility is coming from the study sections and the advisory councils themselves rather than from within our own administration. We have not presented the problem to the Department. We would like to see to what extent this can be taken care of by the community because, quite frankly, we would rather not be in the hotel business.

Mr. **Laird.** You have enough problems running a cafeteria.

Dr. **Shannon.** So we have told those who have proposed housing that if they are able to secure private financing for this, that was fine. But we will not at this point request a Federal program.

Mr. **Fogarty.** What is another area?

SEMINAR CONFERENCE SPACE

Dr. **Shannon.** Another area is in the field of international health. Again this may be satisfied by private financing rather than U.S. Government financing. We see a very serious need for conference space to hold the type of working seminars that will give the United States—officially—a more central international role in the total field of biology and medicine.

Mr. **Fogarty.** I think you ought to give serious consideration to this last one because I can see this area growing year by year. This is going to go on and on and get bigger and bigger year after year. As soon as we are able to see some of the results that will come from our cooperation with other countries and their cooperation with us, there will be a demand for doing more in this area.

Dr. **Shannon.** Mr. Fogarty, we had hoped some 4 or 5 years ago to develop within the World Health Organization a program which would fill the obvious gap in international programs of medical research. But we feel, over and above that activity, there is still required a program of continuing working seminars that will conduct studies of important ongoing programs of medical significance.

We have talked generally about the possibility of financing the construction of a seminar facility with some of the private foundations. It may well be that they will be willing to sponsor such an operation. We have not yet reached the point where we are ready to recommend to the Department that official funds be spent in the development of a new facility.

Mr. **Fogarty.** I hope you will keep it under consideration.

OTHER FUTURE NEEDS

Mr. Kelly. Mr. Chairman, may I supplement what Dr. Shannon said, so if we do come up with additional buildings in 1964 we will not have failed to mention them to you in response to your request.

I think there are three things that are in prospect as possible requests for funds in subsequent years. One is that it is evident that we are going to have additional office space on the reservation in addition to the new office buildings that we have completed. We have currently in planning a gerontology building which will not be on the reservation, but will be a NIH facility probably located in Baltimore.

The Congress gave us funds last year for planning it. Then the third one is the point that I mentioned before, that, short of finding some other solution, we would probably be requesting funds to build a multistory parking building on the reservation in order that we avoid converting all the vacant land to blacktop. Because of the location of the facility, we have less carpooling arrangements than we have in the downtown area of Washington. There are fewer persons per car. There are more visitors on that site, and the parking situation is acute.

Dr. Shannon. And then there is the completion of the farm construction and relatively minor items such as the relocation of our library and the addition of a floor on the warehouse.

FACILITY NEEDS FOR FUTURE IN PHS OTHER THAN NIH

Mr. Fogarty. What about needs of the rest of the Public Health Service?

Mr. Kelly. Well, in terms of other facilities that we have under consideration within the foreseeable future there is the total environmental health program, with a center in Washington, and then with various kinds of field laboratories for their various programs that tie in with the central facility, and we have under consideration the question of requesting funds not for new facilities but for modernizing and improving our existing facilities.

This is particularly acute in connection with the hospital program. Of course we are still adding facilities in connection with the Indian health program. That is really part of the master plan under which we started, and we have not as yet completed that.

IMPROVEMENTS AND REPAIRS AT NIH

Dr. Shannon. I want to mention a particularly important construction need that remains unmet. I might point out that neither the Department nor we are happy about the way in which major repairs and improvements are handled. The financing of these is handled by the General Services Administration as the central authority for all the Government. This makes difficult the programing of maintenance—especially preventive maintenance.

We have discussed the possibility of presenting that as an item in our budget where it can be properly related to our program needs. This matter is unresolved, at least from the standpoint of our having permission to present that as a specific item.

Mr. **Fogarty.** I think maybe you should give us a breakdown of what your repair and maintenance requests were and what was allowed.

I am a firm believer in keeping these buildings up because the longer you let them go, the more it costs to get them back in good condition.

Dr. **Shannon.** We have good relations with GSA but under the present system we have been getting very inadequate funds and never know how much we shall get for the coming year to meet our needs.

(The following additional data was subsequently furnished:)

MAJOR REPAIR AND IMPROVEMENTS AT NIH

Major repair and improvement requirements at NIH include such items as: replacement of old and dangerous fire escapes, major roof repairs, modification to incinerators, road repairs, and alterations to air conditioning, etc. The funds for these kinds of items come from an appropriation made to GSA for the repair and improvement of public buildings. Each year, the GSA, in cooperation with NIH, identifies a list of projects which require financing. However, the amounts of money which are subsequently made available have not come close to meeting NIH needs. Moreover, there has not, under this system, been any realistic basis on which NIH could proceed with planning for the coming year. For example, we have no indication at this time of the amount which may be available to NIH for major repairs and improvements in fiscal year 1963.

In terms of actual experience, the amounts provided NIH have fallen well short of half of its requirements. As compared to total estimated requirements of $4,652,000, based on lists of needed projects over the past 5 years, funds made available during this period have amounted to less than $2 million. Following are the funds made available in each of the past 5 fiscal years:

Fiscal year 1958	$370,000
Fiscal year 1959	466,000
Fiscal year 1960	137,000
Fiscal year 1961	[1] 774,000
Fiscal year 1962	[2] 140,000
Total	1,887,000

[1] $750,000 of this amount was used for a major electrical difficiency which left only $24,000 for other major repairs and improvements in 1961.

[2] Programed but not yet available.

The consequences of inadequate financing for repairs and improvements are becoming progressively more serious with the increasing age of the plant. We believe that an appropriate and realistic solution to this problem would be to budget for major repairs and improvements in an appropriation made directly to the Public Health Service where the development and presentation of the estimates can be closely related to program requirements.

Mr. **Kelly.** We are much in hopes that in 1964, Mr. Chairman, we will be permitted to bring the whole repair and improvement program for the Department before this committee, rather than before independent offices.

As you know, this has been, at least in part, related to the question of the resolution of the future of the Public Health Service hospital system. We have made more progress in the past month or so toward that resolution than we have in the whole time it has been under discussion.

As soon as that problem is resolved, I am of the impression that the total repair and improvement program will be in our budget.

This problem has been somewhat complicated, too, by the fact that the Congress, in enacting the Public Buildings Act—the recent amendments to it about 3 years ago, I think—made a provision that they would do all general-purpose work; and where the cost of an individual project exceeded a certain sum—I think $250,000—that it has been submitted to the Public Works Committee for an individual project approval, even though you have the funds for it.

It has now been interpreted that this law does not apply to specialized facilities. But as long as our funding is in the independent offices bill for the General Services Administration, it subjects it to this kind of project approval which would otherwise not be necessary. So we are very much in hopes that in 1964 we can bring the whole program before you.

Mr. FOGARTY. Put a statement in the record showing what you requested and what the Budget Bureau allowed for all of your facilities.

(The requested information follows:)

Repair and improvement projects

Appropriation	Department request to Budget Bureau	Amount in 1963 HEW budget	Amount in 1963 GSA budget
Public Health Service:			
Buildings and facilities, Public Health Service:			
Planning for addition to Galveston hospital	$272,000	------	------
Planning for modernization of hospitals at—			
New Orleans	255,000	------	------
Staten Island	612,000	------	------
San Francisco	165,000	------	------
Lexington	368,000	------	$165,000
Fort Worth	180,000	------	105,000
Carville	243,000	------	107,000
Architectural studies for modernization of hospitals at Baltimore, Boston, Detroit, and Norfolk	100,000	------	------
Quarantine station and outpatient clinic, Honolulu	1,873,000	------	485,000
Relocation of NIH library	750,000	------	------
Construction of master utilities extension, NIH	5,000,000	$4,850,000	------
Construction, building No. 12, NIH	1,800,000	1,800.000	------
Other repairs and improvements:			
Bureau of State Services	679,000	------	1,138,000
Bureau of Medical Services [1]	4,000,000	------	
National Institutes of Health	1,000,000	------	
National Library of Medicine	19,000	------	
Total	17,316,000	6,650,000	2,000,000
Salaries and expenses, St. Elizabeths Hospital:			
1. Resurfacing and paving of roads, parking and recreation areas	35,000	35,000	------
2. Weatherstripping of hospital buildings	15,000	15,000	------
3. Replacement of 2,400-volt electric feeder to J, K, L, and M buildings	17,000	17,000	------
4. Floor covering repairs and replacement	35,000	35.000	------
Total	102,000	102,000	------
Buildings and facilities, St. Elizabeths Hospital:			
Miscellaneous improvements:			
1. Airconditioning of geriatric building	750,000	------	------
2. Replacement of oil-fired boilers	350,000	350,000	------
3. Installation of sprinkler systems in hospital buildings	865,000	865,000	------
4. Modernization of dishwashing installations	50,000	50,000	------
5. Engineering study of plumbing	45,000	45,000	------
6. Rewiring and extension of electrical facilities	150,000	50,000	------
Total	2,210,000	1,360,000	------
Social Security Administration:			
Limitation on salaries and expenses, Bureau of Old-Age and Survivors Insurance (trust fund):			
Baltimore	[2] 251,900	[2] 251,900	------
District offices	34,830	34,830	------
Payment centers	[3] 42,000	[3] 42,000	------
Hearing examiners offices	3,800	3,800	------
Total, BOASI	332,530	332,530	------
Freedmen's Hospital:			
Recurring repair and improvement projects	35,000	33,000	------

See footnotes at end of table, p. 79.

Repair and improvement projects—Continued

Appropriation	Department request to Budget Bureau	Amount in 1963 HEW budget	Amount in 1963 GSA budget
Howard University, salaries and expenses:			
Repair of buildings:			
Lighting improvement	$12,000	----------	----------
Plumbing replacement	14,500	$14,500	----------
Resurfacing blackboards	8,000	2,000	----------
Total, repair of buildings	34,500	16,500	----------
Repairs to mechanical equipment	21,450	14,500	----------
Interior painting	33,450	15,000	----------
Exterior painting	8,800	4,000	----------
Property protection	1,800	----------	----------
Total, Howard University	100,000	50,000	----------
Gallaudet College, construction:			
Residence No. 2	30,000	30,000	----------
Residence No. 3	30,000	30,000	----------
Residence No. 4	30,000	----------	----------
Residence No. 5	12,000	----------	----------
Residence No. 6	12,000	----------	----------
Residence No. 7	25,000	25,000	----------
Gymnasium	15,000	----------	----------
Farm residence	12,000	----------	----------
Barn (used as gymnasium)	9,000	----------	----------
Kendall School, dormitory and classroom	15,000	----------	----------
Relocation of Health Department	----------	15,000	----------
Total, Gallaudet College	190,000	100,000	----------

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[1] Excludes Indian health facilities for which funds are provided in separate appropriation.

[2] Excludes charges for anticipated changes in telecommunication site locations during the year.

[3] Excludes charges for EDP equipment site preparation for 2 payment centers moving to new locations.

Mr. FOGARTY. Mr. Laird?

CONCENTRATION OF NIH IN WASHINGTON AREA

Mr. LAIRD. Mr. Chairman, I have been somewhat concerned over the past few years about the buildup of the National Institutes of Health here in the Washington area. If one will look at the picture which is on our wall, he will see that we have completed quite a little construction in the Bethesda area, where the National Institutes of Health is presently located.

It seems to me that we have a problem here in Washington, concentrating all this type of research activity here in the Capital City. There is no real good reason why it should be concentrated here in Washington, is there?

Dr. SHANNON. The answer to that is partly yes and partly no. The partly yes is that NIH has developed naturally from its historical base—it started way back with the old Hygienic Laboratory. There was a need, as modern science developed, to have more complex facilities and an integrated research environment for the investigation of the problems of medicine.

On the other hand, whether it should be precisely the order of magnitude of the present reservation, or half that, is, I think, a matter of judgment. The scope of the supporting facilities is largely determined by the size of the experimental opportunity. We have 500 patients. I think to support this type of investigative operation involves large segments of supportive research on one reservation.

Mr. Laird. Aren't you getting fairly close to the point, though, where the construction of any more facilities on that land will result in pretty crowded conditions?

Dr. Shannon. Mr. Laird, I think right now with what we have and with what we are currently planning we will have reached the full size of our reservation. I would not like to see any further expansion of the National Institutes of Health in terms of any broad programs or any centralized resources.

This is reflected in our plans for the proposed Institute of Child Health and Human Development. We do not propose to establish a large centralized research program in this new Institute in Bethesda, but are thinking of locating any laboratory work in which the Institute might engage in a university environment.

We feel that the NIH direct operation is getting close to being as large and as complex as it should be if we are to maintain an efficient operation.

Mr. Laird. It seems to me that that golf course is going to be pretty well loaded.

Dr. Shannon. I think it is pretty well loaded now, sir.

Mr. Kelly. I think the record ought to show there isn't any golf course out there any more, sir.

Dr. Terry. Not even a putting green.

Mr. Laird. I am talking about what used to be there.

Dr. Shannon. The National Library of Medicine took up the first four or five holes on that golf course.

We do not conceive of the reservation as becoming more complex than is planned at the present time, although we may require more administrative space than is envisaged in the office building extension.

We have had under study during the past year the possibility of decentralizing certain functions. This is still under study. We would hope that we may, in fact, not require more office space on the reservation than is envisaged in the office building extension. I would like to think that maybe that will be enough.

As far as my own administration is concerned—I known I can speak for Dr. Terry—we do not visualize the continued growth of this reservation beyond what is now planned.

Mr. Laird. Sometimes research on a little smaller scale gets better results. People get so concerned with running such a big institution, that they lose the close touch with the researchers that you have in a university community.

Dr. Shannon. I would point out, Mr. Laird, that the universities are facing precisely the same problem. The large universities are getting larger. As the national pace for research and development is planned, it tends to emphasize largeness almost beyond what is desirable.

PROBLEMS OF DISPERSING RESEARCH

Dr. Seaborg, before he was Chairman of the Atomic Energy Commission, headed a panel on higher education. This panel pointed out that what was needed in this country was the establishment of wholly new centers of learning comparable in scope to those which are highly advanced such as the MIT's, the Cal Techs, the Harvards, the Chicagos, and whatnot.

The problem here is that we don't really have the basic legislation to go out and develop centers of higher learning as centers in themselves. Once they are developed, we can support them. But what is required here is the establishment of wholly new centers about which various Federal programs can revolve.

Take Harvard, Columbia, MIT, Cal Tech, the University of California—these are the really very broadly conceived centers of higher education.

Mr. Fogarty. How about Wisconsin?

Dr. Shannon. I would say Wisconsin is in the next level in terms of size and complexity.

Mr. Fogarty. It is coming up, though, isn't it, all the time?

Dr. Shannon. Yes, sir. But most of the State universities of necessity have to emphasize the undergraduate studies. What is the size of your university now?

Mr. Laird. About 30,000.

Dr. Shannon. I think California is the oldest State university that has developed graduate studies today. It is in very strong competition with the best private institutions, both on a quality and on a mass basis. But what is required in certain of the schools that are now heavily involved in undergraduate education is that they must broaden their graduate education considerably.

Mr. Laird. I realize the necessity for the new cancer research facility which is included in this budget in the amount of $10,280,000. But we hear so much here in the Capital about the insistence of Congress placing more of a Federal impact on this area. There is a certain amount of criticism that is voiced from time to time.

There are many areas around the United States that wouldn't have this same objection that is voiced here. We are probably going to go ahead and approve this request. But I think in future planning the attitude of this particular area should be taken into consideration, that is, objections to the Federal influx into the Greater Washington area.

Mr. Fogarty. Thank you very much.

FRIDAY, FEBRUARY 2, 1962.

ACCIDENT PREVENTION

WITNESSES

DR. ALBERT L. CHAPMAN, CHIEF, DIVISION OF ACCIDENT PREVENTION

STEPHEN J. ACKERMAN, FINANCIAL MANAGEMENT OFFICER, BUREAU OF STATE SERVICES

JAMES F. KELLY, DEPARTMENT BUDGET OFFICER

Object classification

[In thousands of dollars]

	1961 actual	1962 estimate	1963 estimate
11 Personnel compensation:			
Permanent positions	515	880	923
Positions other than permanent	48	129	145
Other personnel compensation	3	2	2
Total personnel compensation	566	1,011	1,070
12 Personnel benefits	58	90	94
21 Travel and transportation of persons	81	140	142
22 Transportation of things	3	20	15
23 Rent, communications, and utilities	7	10	12
24 Printing and reproduction	15	22	22
25 Other services	55	80	59
Research contracts	509	133	303
Payment to—			
"Bureau of State Services management fund"	27	35	40
"National Institutes of Health management fund"	20	25	23
26 Supplies and materials	26	40	40
31 Equipment	47	27	20
41 Grants, subsidies, and contributions	1,236	1,827	1,828
Total obligations	2,649	3,460	3,668

Personnel summary

	1961 actual	1962 estimate	1963 estimate
Total number of permanent positions	122	146	147
Full-time equivalent of other positions	10	23	26
Average number of all employees	83	149	158
Number of employees at end of year	120	189	193
Average GS grade	7.8	7.8	7.9
Average GS salary	$6,708	$6,673	$6,679

Program and financing

[In thousands of dollars]

	1961 actual	1962 estimate	1963 estimate
Program by activities:			
1. Research grants	1,236	1,827	1,828
2. Research, training, and technical services	1,388	1,626	1,840
Total program costs [1]	2,624	3,453	3,668
Change in selected resources [2]	25	7	
Total obligations	2,649	3,460	3,668
Financing:			
Comparative transfers from other accounts	−2,649		
Unobligated balance lapsing		156	
New obligational authority		3,616	3,668
New obligational authority:			
Appropriation		3,618	3,668
Transferred to "Operating expenses, Public Buildings Service," General Services Administration (75 Stat. 353)		−2	
Appropriation (adjusted)		3,616	3,668

[1] Includes capital outlay as follows: 1961, $36,000; 1962, $30,000; 1963 $22,000.

[2] Selected resources as of June 30 are as follows: Unpaid undelivered orders, 1960, $12,000; 1961, $37,000; 1962, $44,000; 1963, $44,000.

Mr. FOGARTY. Dr. Chapman, do you have a statement?

Dr. CHAPMAN. Yes, sir.

Mr. FOGARTY. You may proceed.

GENERAL STATEMENT

Dr. CHAPMAN. Mr. Chairman and members of the committee, while heroic efforts are being made to bolster the Nation's defenses against enemies from without, accidents, many of them needless, are quietly but effectively eroding our defensive capability from within.

The figures speak for themselves: 92,000 Americans killed, and 45 million injured; 1,715,000 entering hospitals each year, and 10 million receiving emergency hospital treatment; 107 million days lost from work, and 13 million schooldays lost.

This massive killing, disabling, and waste of labor potential, concentrated as it is in the young adult male population, is a most effective saboteur of national defense efforts.

Most of this damage can be, in fact must be, prevented.

The increase of funds in 1962 has been put to good use. The first course ever designed for training across-the-board accident prevention specialists was developed by contract with the New York University Center for Safety Education.

Ten promising young public health workers began a 5½-month course of intensive study in accident prevention on January 8, 1962. At the conclusion of the course, these well-trained individuals will be assigned for further training on the job to 10 State health departments.

A study of better methods of providing emergency services for the injured has been established in the city of San Francisco.

A breakthrough, the exploitation of which could have thousands of lives now lost by fire, has been made by the Family Safety Branch. A package of applicable fire prevention techniques has been assembled and now is ready for promotion. This package includes a cotton fabric that has been made flame resistant; a fire-resistant interior paint which can starve out home fires; and a method of fireproofing wood and plasterboard.

The widespread understanding and use of these miracles of modern technology could flameproof beds, sofas, clothing, homes, and even furniture. The lifesaving potential of these breakthroughs is obvious.

In Charleston, S.C., the National Clearinghouse for Poison Control Centers has underway its first community demonstration of methods by which the number of accidental poisonings in the home can be reduced. In 1963 an increase of $50,000 is requested to provide for widespread dissemination of information so that accidental poisonings can be prevented.

A byproduct of Public Health Service cooperation with the Ohio State Health Department in the Blueprint for Life communitywide safety campaign in Cleveland, Ohio, was the production of seven excellent safety films, suitable for TV showing. A contribution of time, estimated at more than $100,000, was made by Raymond Burr—the Perry Mason of TV fame. The high quality of these films has already resulted in such a heavy demands for their use through State and local health department channels that it has been necessary to reprint them in quantity.

Basic research applications in accident prevention have tripled this year. The quality of applicants is high and is continuing to improve as more and more basic researchers are being attracted to this new field of research.

Every day, more and more lives are being saved by such relatively simple techniques and devices as mouth-to-mouth breathing and the installation and use of seat belts.

The number of lives that can be saved by widespread use of new fire prevention methods, drown proofing, improved training for operators of emergency vehicles, and the education of mothers and fathers concerning the safe storage of medicines, could exceed the number of lives saved in many of the old-line public health programs.

The 1963 budget provides for an increase of $156,900 to initiate the development of a research device often referred to as a driving simulator. You will recall that the simulator was first brought to the attention of this committee about 3 years ago by Dr. James L. Goddard, then chief of the accident prevention program who displayed a prototype model of the device. Other experts including Dr. Ross MacFarland from Harvard also testified before this committee on the need for this research tool. After seeking and carefully considering the advice and recommendations of leading authorities on the application of simulation techniques to the field of driver research, we are now requesting funds to expedite the development of this essential research device.

I have touched only briefly on the problem and the program required to reduce accidental deaths and injuries. I will elaborate on any point in which the committee may be interested.

Mr. Chairman, I shall be glad to answer any questions you may have about this program and the budget.

AMOUNT OF 1963 REQUEST

Mr. FOGARTY. Thank you, Doctor. The appropriation for 1962 is $3,618,000 and your request for 1963 is $3,668,000, an increase of $50,000 but a reduction of five positions from what Congress allowed last year. I thought you told us last year this was an important program and you needed these people. What happened?

Dr. CHAPMAN. We feel that the funds that are alloted will permit us to initiate at least one new operation. That is, a contribution toward the continued development of the simulator. It will keep it alive for another year.

Mr. FOGARTY. That is the only new thing you have in this whole budget, that one little thing.

Dr. CHAPMAN. Yes.

RESERVES

Mr. FOGARTY. I shall read the same thing to you that I read to everyone else. This is what the President said on October 26:

> I much prefer that obligational authority remain uncommitted where there is any doubt that expenditures would yield substantial returns to the national interest.

If there is any area in Government where expenditures would yield substantial returns to the national interest, it certainly is in this accident prevention program.

Dr. CHAPMAN. I have to agree with you.

Mr. FOGARTY. But they put in reserve $156,000, which means that they cut you six positions. Your 1963 budget is going to be one less position than you had in 1962.

Dr. CHAPMAN. I would have to ask Mr. Kelly to comment.

Mr. FOGARTY. Five less than you had in 1962.

Mr. KELLY. That is correct.

Mr. FOGARTY. This is an example of the point that I made to the Secretary yesterday. I said it is not only the cut that is going to hurt, but there will be some cuts in some programs—I mentioned education as one yesterday—that we will never be able to get back.

Now I notice this is a concrete example because they cut you six positions for 1962, and now the appropriation that you are asking for for 1963 is five positions less than we authorized you to have in 1962. Is that correct?

Dr. CHAPMAN. That is right.

ACCIDENT RATE

Mr. FOGARTY. The accident problem is not going down, is it?

Dr. CHAPMAN. No, sir.

Mr. FOGARTY. It is going up, is it not, with more automobiles?

Dr. CHAPMAN. The solution of the problem is not much nearer than it was 5 years ago.

Mr. FOGARTY. I think this is one of the worst problems we have to face, but I cannot seem to get people interested in this problem. You have found that out, have you not, in the last 4 or 5 years?

Dr. CHAPMAN. Yes, sir.

Mr. Fogarty. I think the figures, as you say in your statement, speak for themselves—92,000 Americans killed, 45 million injured, 1,700,000 entering hospitals each year, 10 million receiving emergency hospital treatment, 170 million days lost from work, and 13 million days lost from school, because of accidents.

With those figures, I do not know why in the world they ever cut you back and put funds in reserve. And for 1963, they are going to cut you back five positions below what we authorized last year. It just does not make sense to me. Instead of cutting back, it seems to me you ought to be going ahead.

ADDITIONAL PERSONNEL REQUESTED

How many positions did you ask the Bureau of the Budget for, for 1963? You got 147 authorized in this estimate but how many did you ask the Bureau of the Budget for?

Dr. Chapman. An increase of 52 positions.

Mr. Fogarty. Do you think you could use those to advantage if this committee saw fit to give them to you?

Dr. Chapman. I believe so.

Mr. Fogarty. That is not a very convincing answer. You just believe so or do you know so?

Dr. Chapman. I know so.

Mr. Fogarty. I am giving you the chance to make a speech now. Go ahead.

STATE REQUESTS FOR ASSISTANCE

Dr. Chapman. Well, we have on record a few examples of this. Thirty State health departments have asked us for assignment of accident prevention specialists. We are meeting the demand of six of them.

Mr. Fogarty. Will you put those 30 States in the record and the 6 that you are able to meet?

Dr. Chapman. Yes, sir.

(The information follows:)

Prior to fiscal year 1962 the Division of Accident Prevention had two persons assigned to State health departments in Arkansas and New Hampshire.

Requests have been received from the following 30 additional State health departments:

Arizona
California
Delaware
Florida
Hawaii
Illinois
Iowa
Kansas
Louisiana
Maine
Maryland
Minnesota
Mississippi
Missouri
New Jersey
New Mexico
North Carolina
North Dakota
Ohio
Oklahoma
Oregon
Rhode Island
South Carolina
South Dakota
Tennessee
Vermont
Virginia
Washington
West Virginia
Wyoming

During fiscal year 1962 we will have personnel assigned to:

Kansas
Maryland
Mississippi
Oklahoma
South Carolina
West Virginia

In addition to the six listed above, an assignment is going to be made to California.

Requests from the following States have not been filled:

Arizona
Delaware
Florida
Hawaii
Illinois
Iowa
Louisiana
Maine
Minnesota
Missouri
New Jersey
New Mexico
North Carolina
North Dakota
Ohio
Oregon
Rhode Island
South Dakota
Tennessee
Vermont
Virginia
Washington
Wyoming

At present we plan to assign about 5 of our 10 trainees to State health departments. The other five will be assigned to city or county health departments.

Dr. Chapman. Then there are the 10 graduates from our special training course we developed this year for the first time and which at the end of June will provide 10 more men to be assigned to State health departments. This will leave a deficit as of now of about 19.

In addition to that, we have requests from local health departments for similar type service, younger men who will be in training status.

BREAKDOWN OF REQUESTED INCREASE THAT WAS DISALLOWED

Mr. Fogarty. Will you supply for the record a complete breakdown of these 52 positions that were not allowed and also how it is going to hurt your program unless you get the 52 positions.

Dr. Chapman. Yes, sir.

(The information follows:)

Following are the programs associated with the 52 positions referred to above. These plans were approved by the Department of Health, Education, and Welfare for fiscal year 1963.

Emergency medical services (traffic safety), five positions, $205,000

This program is intended to improve the initial emergency treatment and the transportation and handling of accident victims or other emergency medical cases. In fiscal year 1962 a pilot study is being made of the management of ambulance and first-aid services in San Francisco, Calif., to determine how this system may be improved and adapted for use in other areas. In 1963 it was planned to fully staff this study and to assign personnel to work cooperatively with other cities or local areas in improving emergency services. The quality of ambulance service now varies from crude transportation in makeshift vehicles with no regulation or standard for care to the comprehensive type of regulated program in effect in a few cities such as San Francisco. In most cases the vehicles are poorly equipped to handle emergencies and many attendants are untrained. An improved emergency medical services program would increase the victims' chances for survival and minimize the aggravation of injuries.

Driving simulator and related studies (traffic safety), two positions, $725,000

The two positions requested here would be the technical staff needed to plan, supervise, and manage the simulator program involving research and development contracts of $705,000 proposed for 1963.

Related to the simulator program are studies to determine the skills and abilities required in the task of driving. To insure the highest fidelity in the driving simulator, studies must be made to determine how much and how well drivers actually see as they drive, what they respond to, and how efficiently they respond to external stimuli. These studies are essential to determine what and how much to simulate to insure driver performance identical to performance in a real environment.

Loss of these positions deprives the Government of some of the specialized skills required to insure the development of the best possible type of simulator program in the shortest possible time. These positions and the funds proposed would have greatly accelerated the program to reduce traffic accidents.

Of the above request $156,900, but no positions, was approved for development of the simulator in fiscal year 1963.

Assignments to States, 11 positions, $105,000

Family (assign to States) safety.—Five positions, $50,000.

Farm (assign to States) safety.—Six positions, $55,000.

The majority of State health departments are anxious to begin full-time programs of accident prevention. Their principal need at this time is for trained personnel to plan, organize, direct, and conduct such programs during the initial formative period. In response to this need the PHS requested positions and funds to provide for the temporary assignment of such personnel in 1963. The personnel assigned would assist in establishing programs directed at a number of the major accident problem areas. These programs would be centered around the family unit in urban as well as rural areas. They would involve studies to determine the nature and extent of the accident problem as well as the initiation of preventive programs.

Demonstrations, three positions, $95,000

Poison control.—One position, $50,000.

Family (fire) safety.—Two positions, $45,000.

Plans provided for projects to demonstrate the applicability of currently developed techniques for the prevention of deaths and injuries from home fires. A technique was found to be successful in rural Mississippi County, Ark. It was hoped to demonstrate the lifesaving potential of this technique in other areas of the country.

The other demonstration program was for prevention of accidental poisoning. One position and $50,000 is included in the increase approved for fiscal year 1963.

Special studies and investigations, 19 positions, $340,000

Family (aged) safety.—Seven positions, $125,000.

Farm safety.—Six positions, $100,000.

Recreation safety.—Six positions, $115,000.

This program provided for an intensive study of factors associated with the high number of accidents occurring to old people, to families in rural areas, and to people engaged in selected recreational activities. The plan was to establish study units or teams in the geographic areas where the problem is the most acute and where research could be performed most economically. From these studies, preventive programs could be developed.

Training, 10 positions, $100,000

In 1962 the Division of Accident Prevention provided for intensive specialized training in accident prevention for 10 promising young public health advisers. To meet the demand for such trained personnel, it was hoped that this training could be expanded by adding 10 additional trainees in fiscal year 1963.

Review and approval of research grants (traffic), two positions, $53,000

An increase of $1,909,000 in research grant funds was proposed for 1963. To provide grant services in connection with this anticipated expansion would have required two additional positions and $53,000.

REDUCTION IN FUNDS FOR RESEARCH

Mr. Fogarty. This is one of the first examples we have had where the so-called reserve that has been made is being carried forward to 1963, and on a program that is one of the most important in the Government.

The Congress increased your 1962 request by $250,000 for training and demonstration programs. On page 38 you indicate you are going ahead with this program. So the biggest part of what you cut back on in 1962 is in the area you justified a year ago before this committee.

Dr. Chapman. $94,000 in research grants and $62,000 in research, training, and technical assistance. Of the $62,000, $50,000 was for a farm safety research project and $12,000 was eliminated from training activities.

Mr. FOGARTY. Last year you told us you believed these funds were needed, were very important, and to paraphrase the President, would yield substantial returns to the national interest—if we did not misunderstand you. Did we?

Dr. CHAPMAN. No, sir; we feel that accident prevention has gone a long way by seat of the pants flying, by empirical judgment, by commonsense methods of education. We feel that we have come to a point of diminishing returns where it is already long overdue to develop for accident prevention the same scientific base that has been developed or is being developed in disease prevention.

In other words, very few of the activities that are being engaged in are based on scientific fact determined by scientific research, conducted by scientists of repute. I can give you one example of that, sir.

AUTOMOBILE ACCIDENT CAUSE RESEARCH

Dr. Mosely in Harvard got a research grant. He has a team of 18 scientists, and they investigate thoroughly fatal single car accidents. It is very rare when their findings have any similarity to the official accident report that is turned in.

We were talking just a little while ago about some of the types of things he is trying to develop there. In an accident, if the driver sees a collision coming, and puts his foot on the brake, the rear stop light is activated and the filament warms up. Then the car hits and the man is killed. You can tell from the deformation of that filament not only whether he had his foot on the brake pedal, but how long he had it on before he crashed. Many times the verdict will be that the man fell asleep and ran into a tree, and yet the evidence is that the filament was heated up and had bent with the crash and short circuited—obvious and final evidence that man was not asleep when the crash occurred. Then they have to look for other factors.

They take the car apart, the way the FAA takes an airplane apart and puts it together again, slowly and meticulously, to find out if there are structural defects. They go into the history not only of the driver but of the passengers. In one case it involved an extensive legal suit because they could not quite determine who was driving the car. It was finally determined by the fact that the impact of the crash left an indelible imprint on the right sole of the right foot of one of the boys who was not suspected originally of being the driver of the car.

All of these facts can, by meticulous and rather inexpensive research, be brought out so that they can become investigators in the same sense that the FBI investigates a crime or the FAA investigates an airplane accident.

This is the kind of scientific investigation we want to develop, sir.

STATUS OF NEW RESEARCH PROJECTS

Mr. FOGARTY. In research grants you are financing 20 new projects in 1962. Your budget calls for an increase of how many new projects in 1963 over that 20 in 1962?

Dr. CHAPMAN. It will bring about an increase of two.

Mr. FOGARTY. You mean you are going to have 22 new projects in 1963?

Dr. Chapman. That is right.

Mr. Fogarty. Instead of 20?

Mr. Ackerman. There will be two new projects in 1963.

Mr. Fogarty. You mean you are dropping from 20 to 2?

Dr. Chapman. We have continuing projects which will be started this year.

Mr. Fogarty. You only have funds to start two new projects?

Dr. Chapman. That is right.

Mr. Fogarty. Does somebody have something against your accident prevention program? This looks like outright discrimination to me, the way you have been treated.

Dr. Chapman. Frankly, I have not been treated badly. If anybody is being shortchanged, it is the American people.

Mr. Fogarty. I really didn't mean you, personally.

Dr. Chapman. Speaking broadly.

Mr. Fogarty. I think the Secretary ought to release some of these reserves.

INCREASED RESEARCH GRANT APPLICATIONS

Dr. Chapman. We have been very happy that since the research grant program was transferred to the newly formed division on February 1 of last year that the number of good research applications that have been submitted has tripled.

Mr. Fogarty. What good are the applications if you only fund two? How many applications do you expect to have that would be approved, scientifically approved in 1963?

Dr. Chapman. We had originally planned on the basis of a steady progression of research funds to a level of $3,830,000 for 1963, which would fund 42 additional research grants at $50,000 average. Some of them are very small, some of them are very large.

Mr. Fogarty. If you are only going to be able to fund two new projects in 1963, it seems to me that this program is being phased out of existence.

Dr. Chapman. It will bring about some decline in our activities.

APPLICATIONS COMPARED WITH AVAILABLE FUNDS

Mr. Fogarty. How many applications do you have for 1962 that you cannot fund?

Mr. Ackerman. In terms of dollars, I believe it is $200,000.

Mr. Fogarty. You have $200,000 carryover into 1963?

Mr. Ackerman. Yes, sir.

Dr. Chapman. This is the first time we have had an unfunded balance.

Mr. Fogarty. You have a $200,000 carryover. How much will you have available in 1963 under the budget?

Mr. Ackerman. $100,000 for new projects.

Mr. Fogarty. You have $100,000 for new projects in 1963, and you have $200,000 left over from 1962.

Mr. Ackerman. Yes, sir.

Mr. Fogarty. That is not making much progress, is it?

Mr. Ackerman. No, sir.

Mr. Fogarty. How much approvable projects do you think you will have in 1963?

Mr. Ackerman. It is estimated there would be $1,300,000 of new applications estimated as approved by the councils in 1963.

Mr. Fogarty. And you will only have $100,000 to fund $1,300,000 of approvable new projects?

Mr. Ackerman. Yes, sir.

Mr. Fogarty. The more I get into this, the more I think it is outright discrimination.

EXAMPLES OF PRESENT RESEARCH PROJECTS

Give us a couple examples of projects you are carrying on now.

Dr. Chapman. In the traffic field there are the Cornell crash injury research studies, support of which is being terminated this year. That has resulted in a great deal of new knowledge. For example, a very interesting fact that was unknown was that when a car crashes at 30 miles an hour, the force of gravity alone will cause the bolts which lock the doors to fly forward and open the door. This was easily corrected. As a result, the industry has now produced triple strength door locks that are standard in all cars.

They also found a great proportion of the injuries to the driver that result from crashes are caused by the steering wheel, so that by dishing the steering wheel they could spread out the force of impact across the chest cage and reduce the degree of injury.

The padded dash was the result of their studies. Of course, seat belts themselves——

Mr. Fogarty. What studies are these?

Dr. Chapman. Cornell crash injury research studies.

Mr. Fogarty. Are these supported by you?

Dr. Chapman. Partially funded by the Public Health Service. Then, in Cornell Medical School, one research project indicated that among the drivers in single car fatal accidents the alcohol levels in the blood were considerably higher and occurred much more frequently than had been expected. In fact, as high as 50 percent of the drivers in single car fatal acidents had been drinking. This level rose precipitously after 9 o'clock at night and even greater after 12 o'clock. The correlation of fatal accidents for miles driven was practically nil during the daytime when you would expect it to be high, going to and from work, in and out of New York City, but when you got the cars off the road, put the drinking driver on the road with an increasing alcohol content from 9 o'clock at night until 3 o'clock in the morning, then the fewer the cars the higher the fatal accident rate and the higher the alcohol content level. This has been indicated by several other pilot studies and now is going to be studied much more intensively. Already the American Medical Association has revised its acceptable blood alcohol level from 0.15 to 0.10 as a result of this.

In Harvard University, I told you about Dr. Mosley and his methods of investigation, which are unique in America and, I think, any place in the world. He is trying to develop new scientific approaches to the determination of the real causation of accidents. His team finds that witnesses cannot be depended upon. The driver and the passengers suffer shock. Whatever they say does not jibe with the facts.

You question five people who saw the accident, and each comes up with a different story.

We have to find scientific methods of determining what happened to the person before he got in the car and got into the accident situation before we can bring about some amelioration of the situation.

In UCLA, in the crash studies there, Dr. Severy found out some very interesting things. He found that the energy absorption characteristics of automobiles were not what they had anticipated they would be. As a result, this information was passed on to the automobile manufacturers, and certain changes were made which will increase the energy absorption ability of automobiles.

Our Connecticut study—you are well aware of that—is going to go on until the end of December, at which time we will have examined about 18,000 drivers, and then we will follow them for another 3 years to find out——

Mr. Fogarty. Are you sure you have enough money to complete that study?

Dr. Chapman. We live from month to month and from year to year. We have enough until July 1.

Mr. Fogarty. Are you sure you are going to have enough money in this appropriation to complete that study?

Dr. Chapman. We will have enough until July 1.

Mr. Ackerman. This budget contains adequate money for continuation of research grants.

Mr. Fogarty. How many of those 20?

Mr. Ackerman. The 20 referred to new grants. Those that will be up for continuation are provided for in the budget.

CHILD POISONING

Dr. Chapman. At San Jose there was a study of child poisoning. It was found that 25 percent of the cases of child poisoning that were fatal were due to aspirin and 50 percent due to medicine. As a result, the Accident Prevention Division has been concentrating on developing a child resistant medicine chest and has encouraged State and local health departmets to get mothers and fathers to put medicines out of reach of the child. Seventy percent of these poisonings did not involve medicine chests but just medicines carelessly lying around. So simple educational programs can reduce a lot of this loss of life. This was not brought out until the spotlight of research was put on it.

Mr. Fogarty. You can supply some other examples for the record.

(The information follows:)

Other examples of findings from accident prevention research:

The University of Missouri studied farm accidents and found that farm machinery accounted for 17 percent, falls accounted for 29 percent, and another 29 percent involved being struck by or against objects.

The Snell Memorial Foundation studied survival limits of localized head acceleration. Based on their findings, designs for improved helmets for protection of the head were developed. These will have application for football, automobile racing, and other uses.

At the Flight Safety Foundation crash injury data are being generated and promulgated to the aircraft manufacturing industry having implications for safer structural design of the compartments of light planes. Data on the limits of aircraft seat belt protection indicate the need to consider the seat belt as just part of the total system of passenger protection.

Many other research grants were begun in 1960 and 1961 which have not yet progressed to the point of published findings.

PROPOSED USE OF ADDITIONAL FUNDS

Mr. Fogarty. Supply for the record how you would spend another million dollars in this area.

Dr. Chapman. I will be happy to.

Mr. Fogarty. Give us the type of grants that would "yield substantial returns to the national interest" and also another statement using $500,000.

Dr. Chapman. Is this $500,000 for research grants?

Mr. Fogarty. Yes.

Dr. Chapman. Very well.

(The information follows:)

Listed below are some broad areas of research which should yield valuable information in the national interest from the standpoint of providing knowledge which would contribute to more effective accident prevention programs, if $1 million additional funds for grants were appropriated in fiscal year 1963. Many of the anticipated new grant applications for 1963 are expected to be in these areas and should be supported.

1. Relation of injuries to mechanical-environmental features.
2. Improvement of methods for licensing, training, retraining, and control of drivers.
3. Relations of medical, physiological, psychological, and sociological factors to accident involvement.
4. Development of new techniques for studying accident reduction such as:
   - *a.* System analysis.
   - *b.* Mathematical modeling.
   - *c.* Computer techniques.
   - *d.* Instrumentation of man-vehicle-roadway complex.
5. Age-associated behavioral and social changes in relation to accident involvement.

An increase of $500,000 would insure support for about one-third of the projects expected to be recommended for approval by the National Advisory Health Council in 1963.

DRIVING SIMULATORS

Mr. Fogarty. I think you should tell us more about this driving simulator. I have been in favor of that myself. It was rather controversial a few years ago because of the cost.

Dr. Chapman. Cost is relative. If this were a military simulator and you projected the cost of a simulation device against a total defense budget, it becomes very small. When you project the cost of simulation against our budget, it becomes very big. There are three types of simulation that will eventually be necessary. One is a completion of the UCLA-type simulator, which is now part way to the goal, translating the 180-degree motion picture projection of the highway into a 360-degree multiple television projection from a model car in a model community, electronically manipulated by the controls of an actual car in the center of the simulator. This can be done. It is estimated by the professor in charge of research at UCLA that it could be done in 2 years for $2 million.

In addition, there are other concepts of simulation slightly at variance with this particular concept. We would like to be able to support the development of other concepts, one or two in other leading universities that have a good start in this field, so that we will not be putting all of our eggs in one basket.

The third type of simulation is awfully important. That is cheaper part task simulation. For example, if you want to learn about visual limitations in driving, you could develop a much less expensive simulation device which would give the measurements you need to determine the effect of visual acuity or lack of acuity on driving performance.

The same could be said of hearing or neuromuscular defects. When you get facts and figures from the part task simulator, you validate them on the high fidelity full task simulator. We feel that we cannot do this research on the open highway. It would be prohibitively expensive. It would be exceedingly dangerous, and certainly the public would not accept it. We can put a person in a simulator and have have him so psychologically oriented that for all intents and purposes this is reality. Even with this imperfect device at UCLA, when the car starts up, the driver hears the motor, he feels the vibration, he sees the scene moving ahead of him, you ask him to get out of the car, he will not get out because he thinks he is on the open road and will be killed.

The psychological simulation is already achieved. With a high fidelity simulator, we would have not only a play in of all the factors that would simulate road conditions, but we would have a playback into an electronic recording device of such things as the galvanic skin current, blood pressure, respiration, et cetera. This would measure those parts of the driving situation which are dangerous and which demand decisionmaking.

Mr. Fogarty. So you have three types of simulators you are talking about in addition to the one we saw a model of; is that right?

Dr. Chapman. In addition there is a variant of the big one which could be used eventually for training. Already there is a Link trainer and other similar trainers. In aviation this simulation technique has been used for training pilots to land blind in fog, so that pilots learn how to react safely before they ever get into the situation. This same type of equipment can be used for training.

Mr. Fogarty. What about training the astronauts?

Dr. Chapman. The same thing is true there. We all have heard of the human centrifuge.

Mr. Fogarty. This is on a much larger scale than anything you are talking about here.

Dr. Chapman. Yes.

Mr. Fogarty. But they both involve human life.

Dr. Chapman. That is right. Ours involves 40,000 deaths on the highway.

EXPANSION OF POISON CONTROL CENTERS

Mr. Fogarty. The other change is to expand your poison control activities. What are you doing in this area?

Dr. Chapman. The number of poison control centers in the United States has increased since the National Center for Poison Control was established to 460-odd centers.

Mr. Fogarty. What is a poison control center?

Dr. Chapman. It is usually located in a hospital; it may be located in a health department, where the private physician may take a child who is allegedly poisoned. There they have a file of all of the ingredients of the substances that the child might have eaten, with the antidotes and treatment readily available. This permits rapid initiation of emergency treatment for almost every type poisoning.

I once went over to Gallinger Hospital when Dr. Fazekas was there. He said, "Now, you have a nice poison control center, you have centers all over the country, but one-third of the children coming to Gallinger Hospital"—I do not vouch for the exact figures—"come here because of poisoning. What are you doing to prevent their ever getting poisoned in the first place?"

COMMUNITY DEMONSTRATION PROJECTS

We are taking a step in that direction and establishing in Charleston, S.C., a communitywide demonstration project to educate the public, using all available community means. They are doing it themselves, and we are helping them to educate mothers and fathers about the usual methods by which children are poisoned, so that parents can prevent this poisoning. Having gotten this information, we will use an additional $50,000 to disseminate the information gleaned there throughout the country to turn present control centers into the nucleus of a poison prevention program in the major cities and towns of the United States. Eventually we will stop cases of poisoning rather than treating them after they are poisoned.

FAMILY SAFETY PROGRAM

Mr. FOGARTY. I notice you are not asking for an increase in the family safety program. You feel you have a large enough program to take care of your needs in this area?

Dr. CHAPMAN. Speaking as a program man I can say we do not have enough money.

On the other hand, with the present budget we are making progress.

Mr. FOGARTY. I want you to tell us what you think we need in this area.

Dr. CHAPMAN. We are very much enthused about the possibility of decreasing the number of injuries and deaths from fires. There is a lot of information readily available that nobody seems to be doing anything about.

The Department of Agriculture Research Station in New Orleans has developed a method of fireproofing cotton, making it fire resistant, so that you can hold it over a flame, and it will not burn.

Already the Armed Forces have ordered this material for covering mattresses. Some hotels are using it. Eventually I hope all over the United States they will use it. There are horrible deaths where people burn up because a mattress becomes a bed of smoldering embers. These kinds of deaths can be wiped out by a simple mattress covering of fire-resistant cotton.

This material can be made into little girls' dresses and little boys' suits so that if they do go near fire and the fire touches them they will not burn up like a torch.

The fire-resistant cotton will effectively smother this. There is fire resistant paint, also, which I was assured this morning eventually will be brought down to a price level competitive with ordinary paint we use on the walls of most homes.

We have seen demonstrations where this paint resists the heat of a blowtorch for 2 hours without permitting the paint to be affected. That is a heat of 1,500 degrees.

There now is fireproof wood which has been introduced into one building I know of in Arlington, and researchers are experimenting now with the development of a fireproof wallboard.

Once this package is developed and publicized, then we can build fires out of the homes these——

Mr. FOGARTY. How much will that cost?

Dr. CHAPMAN. We could make a start in that program for $45,000, a community demonstration.

AUTOMOBILE SEATBELTS

Mr. FOGARTY. What is the automobile industry doing about putting seat belts into cars?

Dr. CHAPMAN. The seat-belt story is one of our most heartening ones.

Mr. FOGARTY. It has been a long time coming.

Dr. CHAPMAN. It is like all good things. What happened is that the industry is putting seat-belt attachment points in all new cars coming off the assembly line.

Mr. FOGARTY. All manufacturers?

Dr. CHAPMAN. All American manufacturers. One of the major manufacturers is putting in five attachment points. The big improvement is that they have been standardized so all you have to do is to insert eye bolts and snap on the belts.

That means that in 1 year 15,680,000 new attachment points will be provided. That will tremendously reduce the total cost. It will take away the cost of installation. Anybody can install the belts easily and quickly.

In addition to that we just got some encouraging figures from Detroit. I won't mention the companies by name, but one company is installing seat belts right now, in 16 percent of the cars that come off the assembly line on an optional basis. In another company the figure is 10 percent. In another company it is 16 percent. Another company has 12 percent. This alone will give us 971,200 belts in addition to the attachment points. Recently we contacted the seat-belt manufacturers and found that in 1960 they sold 1 million seat belts and in 1961 they sold 6 million. They are 3 months behind in their orders.

MANDATORY USE OF SEAT BELTS

Mr. FOGARTY. I notice Wisconsin is the first State to require safety belts in front seats.

Are there any other States?

Dr. CHAPMAN. That is the only State in which it has been made mandatory.

The President's Committee on Traffic Safety was asked by the White House to advise the White House on the feasibility of requiring seat belts in the front seats of all Government vehicles.

I noticed just yesterday that the Department of Agriculture has followed this directive and ordered seat belts in the front seats of all their cars by July 1 of 1963 and they have required that they be used when they are installed.

I would anticipate other Federal agencies will follow suit. This is putting the Federal house in order before we go to the States.

Mr. **Fogarty**. Mr. Marshall?

Mr. **Marshall**. I have no questions.

Mr. **Fogarty**. Is there anything else you would like to say, Dr. Chapman?

Dr. **Chapman**. Off the record.

(Discussion held off the record.)

Mr. **Fogarty**. Thank you very much, Doctor.

MONDAY, FEBRUARY 5, 1962.

CHRONIC DISEASES AND HEALTH OF THE AGED

WITNESSES

DR. LESLIE W. KNOTT, CHIEF, DIVISION OF CHRONIC DISEASES
DR. THEODORE J. BAUER, CHIEF, BUREAU OF STATE SERVICES
STEPHEN J. ACKERMAN, FINANCIAL MANAGEMENT OFFICER FOR COMMUNITY HEALTH PROGRAMS
DR. LUTHER L. TERRY, SURGEON GENERAL
JAMES F. KELLY, DEPARTMENT BUDGET OFFICER

Object classification

[In thousands of dollars]

		1961 actual	1962 estimate	1963 estimate
11	Personnel compensation:			
	Permanent positions	710	1,092	1,459
	Positions other than permanent	55	505	695
	Other personnel compensation	3		
	Total personnel compensation	768	1,597	2,154
12	Personnel benefits	98	130	185
21	Travel and transportation of persons	104	213	258
22	Transportation of things	9	14	23
23	Rent, communications, and utilities	17	18	24
24	Printing and reproduction	11	77	97
25	Other services	58	129	181
	Research contracts	172	1,304	1,293
	Payments to "Bureau of State Services management fund"	62	70	80
26	Supplies and materials	50	65	86
31	Equipment	20	55	61
41	Grants, subsidies, and contributions		8,019	18,500
	Total obligations	1,369	11,688	22,942

Personnel summary

	1961 actual	1962 estimate	1963 estimate
Total number of permanent positions	114	176	213
Full-time equivalent of other positions	14	83	103
Average number of all employees	115	240	305
Number of employees at end of year	111	316	359
Average GS grade	7.5	7.7	8.0
Average GS salary	$6,496	$6,440	$6,619

Program and financing

[In thousands of dollars]

	1961 actual	1962 estimate	1963 estimate
Program by activities:			
1. Grants:			
(*a*) To States		6,000	13,000
(*b*) Project		2,319	6,000
2. Research, training, and technical services	1,355	3,252	3,942
Total program costs [1]	1,355	11,571	22,942
Change in selected resources [2]	14	117	
Total obligations	1,369	11,688	22,942
Financing:			
Comparative transfers to or from (−) other accounts	−1,369	75	
Unobligated balance lapsing		1,193	
New obligational authority		12,956	22,942
New obligational authority:			
Appropriation		10,958	22,942
Transferred from "Community health practice and research" (75 Stat. 733–736)		2,000	
Transferred to "Operating expenses, Public Buildings Service," General Services Administration (75 Stat. 353)		−2	
Appropriation (adjusted)		12,956	22,942

[1] Includes capital outlay as follows: 1961, $13,000; 1962, $39,000: 1963, $63,000.

[2] Selected resources as of June 30 are as follows: Unpaid undelivered orders, 1960, $46,000; 1961, $60,000; 1962, $177,000; 1963, $177,000.

GENERAL STATEMENT

Mr. FOGARTY. Now, we shall go to the request for "Chronic diseases and health of the aged." Dr. Knott, do you have a statement for the committee?

Dr. KNOTT. Yes, I do, Mr. Chairman. I will be glad to submit that. I would like to comment just briefly on it.

(Dr. Knott's statement is as follows:)

STATEMENT BY CHIEF, CHRONIC DISEASES, ON "CHRONIC DISEASES AND HEALTH OF THE AGED"

Mr. Chairman and members of the committee, today I am speaking to the appropriation "Chronic diseases and health of the aged." This includes three categories of funds all of which are for the common purpose of improving and extending community health services for the chronically ill and aged. These three kinds of funds are (1) research, training, and technical services which are used for central office staff and activities and for cooperative agreements with communities for establishing out-of-hospital services and preventive services programs, (2) formula grants to States for initiating, expanding, and improving community health services for the chronically ill and aged, and (3) project grants for studies, experiments, and demonstrations for the developing of improved methods for providing health services outside the hospital particularly for the aged and the chronically ill.

RESEARCH, TRAINING, AND TECHNICAL SERVICES

Last year I had the privilege of presenting to you our plans for a new program for providing assistance to communities for establishing out-of-hospital community health services projects. You will recall that we had proposed that our direct operating funds be increased for the specific purposes of providing support for 60 to 70 community cooperative agreements which would show what could be done in different parts of the country to provide health services to older people in their own homes. As expressed at that time, the emphasis was to be on service to the individual and not on surveys and studies.

I can report to you that this initial year of operation has been a most successful one in many ways. Out of the total increase of $2 million made available, $1.2 million was set aside for financing cooperative agreements with communities for establishing as demonstrations, new programs which would emphasize such out-of-hospital services as, nursing care of the sick at home, homemaker services, information and referral programs, improvement of care in nursing homes, and coordinated home care services. In a little more than 4 months since the beginning of the year, we received 111 applications for assistance from communities in most every State in the Union. The total dollar assistance requested was over $2.9 million. We have recommended 45 projects for funding as of the 15th of January, we have disapproved 22, we have deferred action on 19, and an additional 25 were approved but not funded.

The effect of this program on individual States has been outstanding, and for the first time many communities are taking a critical look at the need for health services outside the hospital. They are showing a new appreciation for the total health resources available in their communities and are becoming increasingly aware of both the overlaps and the gaps in their health services. Individual State experiences in developing cooperative agreements utilizing the increased funds provided for this year range from an award of $10,000 to the community of Beatrice, Nebr., which though lacking an organized health department, is initiating a homemaker services program, to a Florida project for providing home nursing services in a 26-county area, to New York State, where many of the basic health services are available in communities, and where it is proposed to carry on a statewide program of information and counseling services to all communities within the State.

Another effect of this new program has been to create an increasing awareness among State health agencies that they must assume leadership in securing legislative authority to enable local health departments to collect fees for services. As an example, the State of Ohio has recently enacted legislation to enable their local health departments to collect fees for home nursing care services. The fee for service practice will facilitate an earlier assumption of full project support by the community, as we are insisting that Federal support for projects be for a limited period of time, generally with a gradual withdrawal of Federal funds. An additional advantage is that it makes these services available to those who can pay part or all of the fee and does not limit the services to the medically indigent.

I would be remiss in my duty if I neglected to tell you of some of the difficulties encountered in implementing this program. New community projects to provide out-of-hospital care require certain types of professional personnel which for the most part are already in short supply. We are trying to help communities meet this problem in a number of ways, by assisting in the conduct of training programs for personnel to be employed in these new activities, by suggesting that registered and practical nurses now inactive be sought for employment on a full- or part-time basis, by suggesting the employment of health aids to assist professionals in home care programs following the pattern of nurses' aids in hospitals, and by promoting the use of voluntary help in these new program activities. In one agreement which we are supporting as a pilot program, it is proposed to utilize older persons themselves to serve as homemakers.

Since the idea of home health care is new to many States and communities we expected and found reluctance or feelings of insecurity in some areas from community groups. In some cases, public health nurses felt a lack of recent clinical experience, in other communities the task of bringing together the segmented, scattered services provided by many health agencies seemed to be a barrier, in still others doubts existed as to physicians' support and cooperation. In most cases, however, these barriers were not too difficult to overcome once the true aims of the program became known.

This move to expand home services has placed exhaustive demands on our limited staff for consultation and guidance. States and communities are thinking in terms of what they will do in the next several years and are looking to us for assistance in planning and developing sound, new, comprehensive community programs. They are looking to us to develop, to demonstrate, and to try out new methods of providing these services.

Our efforts so far this year have emphasized the development of home care and restorative services for those already sick and disabled. This should be continued, but we now believe that it is also time to step up significantly the types of programs that will prevent prolonged sickness and disability.

Early detection

In 1963 we propose to expand our activities in diabetes and arthritis and we are recommending that funds allocated to this activity be increased by $474,000 for 1963.

For a number of years we have had a modest program in diabetes and though the accomplishments of this program are considerable in terms of developing techniques for program application, we have not been able to devote sufficient resources to gearing an aggressive program for the application of knowledge in diabetes which would provide a continuous State effort to detect the disease early, bring the suspects to treatment, and keep them controlled. The incidence and effects of the disease and the fact that detection and control measures are available, obligates us to devote more of our resources to preventing disability due to diabetes.

With respect to arthritic diseases, arthritis and rheumatism rank first among the 10 leading chronic diseases and causes of physical impairment. In the absence of specific measures to prevent or cure most of the arthritic diseases, modern management is directed at controlling disability from these conditions. Crippling often occurs when there is needless limitation of movement of affected joints and much of the crippling can be prevented by early mobilization of the affected limbs and modern therapy. It was with the purpose of providing an effective guide for this latter approach that our pamphlet "Strike Back at Arthritis" was developed and is being used now in several States as the basis of their arthritis program effort. Arkansas is the latest of the States to begin planning a continuing statewide program utilizing techniques prescribed in this booklet. This year we are employing a full-time qualified doctor with State experience in arthritis programing to step up this program.

We feel, however, that much more remains to be done in developing a broad, effective preventive effort. Tests for the early detection of diseases and conditions such as gouty arthritis, rheumatoid arthritis, and kidney disorders need to be developed and perfected. The tempo of our educational, consultative, and pilot study activities needs to be increased; demonstrations need to be developed and carried out.

Restorative services

The expansion of effort to control disability through restoration of function has long been the goal of activities of this program. Last year I told you of our programs for stroke and arthritis. With these widely used programs as a guide, techniques applicable to other forms of disability can be developed for such disabilities as fractures, amputations, and nonfunctioning or frozen joints. This year we are preparing the production and distribution of a pamphlet entitled "Step Into Action" for the early reconditioning and preparation of amputees using artificial limbs and $100,000 of our requested increase will be devoted to these activities.

What has been said thus far has been directed to increases in direct operating funds to continue our community health services projects initiated in 1962 and to develop and stimulate the application of more effective preventive measures in community health services programs.

GRANTS TO STATES

The grants activities authorized by Public Law 87–395 (Community Health Services and Facilities Act) complement our direct operating program. This act represents a new major step toward solution of the problem of assisting communities in financing the development of out-of-hospital health services for their chronically ill and aged. It is closely interrelated to medical assistance plans providing assistance to older people to purchase services according to their needs, for unless these out-of-hospital services are available to communities funds for medical assistance to our population will be used for higher priced institutional care and fewer older people will benefit.

Our initial year of operation of the grants program providing funds to States based on a formula which takes into account the numbers of people over 65 and financial need, promises to exceed our expectations. Preliminary plans reported by States for the utilization of these funds reflect an urgent interest and progressive attitude to facilitate the earliest possible development of community programs to provide health services outside the hospital.

Reports of State plan development coupled with a review of those plans already received point up the varying stages of program development among our States agencies. In some of our less populous States, where relatively small sums of money are involved, there are plans for establishing chronic disease program units and employing professional personnel to plan the State's future activities in this area. Eight States plan to utilize these new funds for the partial support of community projects for a limited period and with the understanding that the community must assume full support as rapidly as possible. These projects cover the full range of out-of-hospital services from home nursing care to nursing home improvement, to comprehensive health services programs.

In 15 States, where the idea of home health service programs is new, nursing care of the sick at home has been selected as one of the primary emphasis areas. In three or more States, a statewide program of homemaker services is planned patterned after the New Jersey State Health Department experience.

Twenty-one States are initiating and expanding their programs for improving the quality of care in nursing homes primarily through support of hospital-nursing home relationship programs, through nutritional, nursing, and physical therapy consultation to nursing homes, and through support of training programs for nursing home personnel.

We are encouraged by plans of the States for expenditure of these new funds and we are optimistic regarding their ability to program future funds for the purpose of increasing the availability of home health services. Probably one of the most heartening observations we can make after review of these plans is the strong emphasis on programs for the physical restoration of older people both in their own homes and in nursing homes and related institutions. Fourteen States plan to employ physical therapists and occupational therapists who will train local health personnel in restorative services techniques and who will assist in the development of meaningful community restoration services programs.

A number of States have stated that one of the principal deterrents to full programing in this area may be the availability of personnel locally. I have previously mentioned our plans for assisting communities and States toward solution of this problem. In addition, we now have the authority provided by Public Law 87–395 for the assignment of personnel to States and localities for carrying out the provisions of the State plan, with the understanding that the salary of the individual so assigned may be deducted from the matching grant funds available to the State. We expect to use this mechanism sparingly, but it represents another method of getting programs started in States where the lack of trained personnel is a critical problem.

We are certain that we may expect many new patterns for providing health care to emerge from this accelerated experience. Some States are choosing to use their allotted funds to test their own ideas for improved services. Others, to whom these activities are entirely new, are strengthening their basic staffs to carry out the State's responsibility in this new program development. Still others plan to support community projects as demonstrations. There are problems which are with us now and are seeking solution, such as the improvement of coordination and utilization of existing resources; the recruitment, training, and use of new types of personnel; the tailoring of methods and patterns of care to different community and geographical settings; and the development of improved preventive services techniques. We know that this new interest and accelerated experience in providing home health services will bring new problems but at the same time we will expect to see new and ingenious ideas presented which will require exploration, study, and evaluation.

PROJECT GRANTS

One of the provisions of the Community Health Services and Facilities Act provides authority for project grants for studies, demonstrations, and experiments in the development of new or improved methods of providing health services outside the hospital, particularly for the chronically ill and aged. With this mechanism at our disposal we will be able to stimulate, appraise, evaluate, and study the development of improved community health services. This is a genuine challenge to Public Health Service leadership, since there are few organizations that can provide any significant financial and technical assistance to achieve the broad common objective of improving health services for all kinds of disabling diseases.

Typical of the variety of projects being received for consideration under this authority are the following:

1. Demonstration of method of converting a county farm to a community facility for the aged, Elizabethtown, Tenn.
2. Development of improved methods for providing physical therapy consultation to small hospitals where such services are not normally available, Harrisburg, Pa.
3. Study of public health problems and needs of the aged and chronically ill in a rural population, Boise, Idaho.
4. Project for development and conduct of training program in organized home care, Montefiore Hospital, New York N.Y.
5. Demonstration of home nursing services for the aged and chronically ill through use of part-time, registered professional and licensed practical nurses, New Hampshire State Health Department.
6. Survey and planning institutional and noninstitutional facilities and services, Monroe County, N.Y.
7. Demonstration of home nursing care program under health department auspices, Fargo, N.D.
8. Quantitative measurement of nursing services in nursing homes, Milwaukee, Wis.

There is little doubt that applications for support will exceed the funds available in 1962. The increased funds requested will enable us to continue and expand this much-needed and long-awaited program.

We now have the tools available for initiating, extending, and improving community health services for older people outside of institutions. The speed with which these services will be developed will depend to a great extent on our ability to make funds available and our capability in providing guidance for these most worthwhile programs being developed.

BASIC CONCEPTS

Dr. Knott. Mr. Chairman, I guess if it were appropriate to set up creeds for our appropriation, I think the one for chronic diseases and health of the aged could be simply stated in four points: First, disability can be prevented; second, it can be reversed; third, the disabled can be cared for at home; and fourth, while it is appropriate for some individuals to be cared for in institutions, there are many others for whom institutional care is inappropriate, inefficient, and I think inhumane.

Mr. Fogarty. What do you mean by inhumane?

Dr. Knott. These are people who do not belong there, Mr. Chairman. I refer to those who can be better in their own homes.

Mr. Fogarty. I see; they would do better in their homes. I understand.

Dr. Knott. I think, Mr. Chairman, that any member of this committee would realize that this is not 100 percent applicable. These, I believe, represent convictions of the future and goals toward which we should strive.

Mr. Fogarty. I think all four are important, and I think we have a long way to go in this area. But you are not making much headway with this budget and with what the Secretary and Bureau of the Budget did to you in the 1962 budget. They apparently didn't agree with you.

Dr. Knott. Mr. Chairman, I think we can this year report considerable progress toward those goals.

Mr. Fogarty. That reserve you had placed against you put you in real bad shape.

Dr. Knott. I shall be glad to explain that as we go along.

Mr. Fogarty. You are going to be asked.

Dr. Knott. All right, sir. In any event, Mr. Chairman, I think we have made progress this year. I think that progress has stemmed largely from the White House Conference on the Aging, from the enactment of the Community Health Services and Facilities Act, and from the increased appropriations made available under this heading last year.

We have endeavored to capitalize on these mechanisms. We have, for example, received over 100 requests from communities and States seeking financial assistance under the cooperative agreement technique in order to establish out-of-the-hospital services. These projects have ranged anywhere from a relatively simple type of homemaker service in a community such as Beatrice, Nebr., to highly complex projects such as one providing nursing care of the sick at home in Florida. This covers 26 counties.

We have tried under this mechanism to encourage, first of all, that there be local participation in order to insure permanency. We have also tried to encourage the use of fee-for-service, based on ability to pay, so that the service would be made available to all—not just the indigent.

COMMUNITY HEALTH SERVICES AND FACILITIES ACT

Likewise, Mr. Chairman, I think the Community Health Services and Facilities Act which authorized grants to the States on a matching basis has also done much to expand the services in our States. The preliminary plans that have been made available to us show that many are subsidizing local community projects in out-of-the-hospital services.

They are improving care in nursing homes by adding additional staff to the statewide services. They are employing technical consultants such as physical therapists and occupational therapists who are giving consultation, help, and training to nursing homes and other institutions in the State which care for the chronically ill and the aged. Some States are using various combinations of these methods.

These have all emphasized service. The Community Health Services and Facilities Act also gave us a new authority this year under project grants. This was for the purpose of giving assistance for demonstration studies and experiments leading to new and improved methods in the care of the chronically ill and the aged, with particular emphasis on out-of-the-hospital services.

To date, we have received approximately 84 applications totaling $3.3 million. These have emphasized such areas as quality of the medical services to these people; dental home care projects; coordinating health and welfare activities which heretofore have acted independently; therapeutic recreation; and measuring the effectiveness of early detection disease programs.

The emphasis on all of these, Mr. Chairman, has been on studies, new methods, and new ways to handle the care of the chronically ill and the aged.

I think, Mr. Chairman, this year particularly has been a tooling-up year for our States and communities. There has been a tremendous upsurge in the interest in this whole field of chronic illness and health of the aged; and I think that by 1963 we shall be ready to make even considerably more progress than we have this year.

PREVENTIVE ASPECTS OF CHRONIC ILLNESS

There is one other point I should like to mention just before concluding. What we are doing now is improving and increasing our services for those who are already infirm and ill. We should like to emphasize in 1963 the preventive aspects of chronic illness, and, of course, with respect to the care of the aged.

This we hope to do more in the way of early detection of disease at a time when complications might be prevented and disability might be postponed or even eliminated.

In order to accomplish these objectives in 1963, we have placed our request for $11,254,000 increase over 1962. And of this amount, we intend $7 million to go for increased assistance to the States for services; $3,681,000 for studies, demonstrations, and experiments; and $573,000 for research, training, and technical services.

Mr. Chairman, I shall be glad to elaborate on these points.

Mr. Fogarty. Thank you, Doctor. What were the four points that you made in your opening statement? I thought they were excellent and very pertinent to your operation.

Dr. Knott. The four points are, Mr. Chairman: First, that disability can be prevented; second, that disability can be reversed; third, the disabled can be cared for in the home; and, fourth, while institutional care is most appropriate for some, for many others it is inappropriate, inefficient, and inhumane.

NEED FOR TRAINED PERSONNEL

Mr. Fogarty. Isn't it so that, if we develop a real home-care program, this could substantially reduce hospital costs of heart patients, cancer patients, mental patients, and a whole host of others?

Dr. Knott. That is right; it could, sir.

Mr. Fogarty. You are not going to be able to develope that program unless we do something about training the personnel.

Dr. Knott. This is what we are hoping to do, Mr. Chairman, and we are doing that now.

Mr. Fogarty. But you are not even scratching the surface as far as needs are concerned. The States would like to hire a lot of these trained people, but they just can't find them.

Dr. Knott. They are making progress in employing these people. One of the techniques we are encouraging, Mr. Chairman, is the use of aids or less highly trained people who can work in these fields under supervision. The homemaker is one, for example. There are nurse aids. There are physical and occupational therapy aids.

Mr. Fogarty. I realize that, and I think that is good. I think this is one of the coming programs. I think the faster we can develop it, the better off we are going to be.

HOME-CARE SERVICES EFFECT ON HOSPITAL COSTS

Wouldn't this program substantially reduce hospital costs in many of these areas if we had this program developed to its full potential?

Dr. Knott. Yes, Mr. Chairman. I think that has been amply demonstrated in Essex County, N.J.

Mr. Fogarty. Give me two or three examples.

Dr. Knott. There I believe they found, through providing home-care services and providing the nurses and the other kinds of personnel—homemakers to provide the care for these individuals in the home—that they could reduce the cost to the community about $199, roughly $200, per person per month.

Mr. Fogarty. Were those people on public assistance?

Dr. Knott. Yes, sir; and those are people who were formerly cared for in hospitals, nursing homes, and other institutions.

Mr. Fogarty. What about the individual who is in between—a person not on public assistance but who cannot afford to stay too long in a hospital. The so-called middle class is really hard hit by hospital bills?

Dr. Knott. It would result in substantial savings to these individuals, too, Mr. Chairman.

Mr. Fogarty. Do you have any examples?

Dr. Knott. No, sir; I do not. I may be able to provide some information along that line for the record.

Mr. Fogarty. Will you supply that for the record?

(The requested information follows:)

Examples of Savings in Hospital Costs

Home nursing care.—According to the interim report of the Associated Hospital Service of New York City on visiting nurse care of discharged hospital patients, a program for the early discharge of hospital patients to home nursing care showed that of the first 100 patients selected, 73 saved more than $100 each and the hospital had a net savings of $10,000 in the care of these 100 patients.

Improvement of care in nursing homes.—Typical of the potential savings possible through the establishment of closer hospital-nursing home relationship is an actual case of a 71-year-old woman in Alabama. Hospitalized with a fractured hip, she spent 10 days in the hospital at a cost of $440 and was then transferred to a nursing home where she spent 3½ months at a cost of $647, or an average cost of $6 per day. The nursing home, through an arrangement with the hospital, was able to provide laboratory services, physical therapy, and high-quality nursing car which the patient required. This arrangement, i.e., care in a nursing home in lieu of the more expensive stay in a hospital, saved the patient approximately $800.

BUDGET FOR 1963

Mr. Fogarty. Your appropriation for 1962 is $10,958,000, and the request for 1963 is $22,942,000—an increase of $11,984,000. Taking comparative transfers and everything into consideration, you are asking to just about double the funds for this program.

Dr. Knott. That's right, sir.

RESERVE OF 1962 APPROPRIATIONS

Mr. Fogarty. Last year the budget was $3,958,000. That is what Congress appropriated. This was considered by you people to be so important that you asked for a supplemental appropriation of $7,075,000 on September 18, just before adjournment.

When was it, Mr. Kelly, that you said discussions started on this matter of setting up reserves?

Mr. Kelly. In the latter part of September.

Mr. Fogarty. Around the 18th?

Mr. Kelly. Yes, sir.

Mr. Fogarty. Just about the time you were asking for $7 million for this program, you were already talking about setting up reserves.

Mr. Kelly. We were not talking at that time about across-the-board reserves. We were talking about the necessity for cutting back total new obligational authority. But this supplemental came about, as you said, because of the administration's interest in this program and because of the authority which Congress gave us under the Community Health Services and Facilities Act to carry it out.

Mr. Fogarty. We stated in our report that we thought this was one area which should be expanded. We thought a lot could be done with it. We had hoped that, if any reductions were to be made, certainly they would not be made in this area because this is one of the most important in the Public Health Service, I think. I think perhaps we can do more for more people with this program than in any other single area in the Public Health Service. The example that you gave in Essex County, N.J., illustrates this point.

I have been quoting an excerpt from the President's statement of October 26 which was given to each Cabinet member and agency head. He said:

> I much prefer that obligational authority remain uncommitted where there is any doubt that expenditures would yield substantial returns to the national interest.

I don't know of any place in government where an increase in appropriations would yield any more substantial returns to the national interest. Is there any question in your mind, that if you were allowed to use this amount of over $1 million put in reserve that it would yield substantial returns to the national interest?

Dr. Knott. Speaking as a technical person, yes, Mr. Chairman, I believe it would make substantial returns.

Mr. Fogarty. Strictly from a professional point of view, how has it damaged your program?

Dr. Knott. For instance, Mr. Chairman, $562,000 was placed in reserve in our research, training, and technical services program. This meant the curtailment of more than 20 of the 70 planned community projects which we stated last year as our goal. We have approved and financed 47 such community projects, Mr. Chairman.

Mr. Fogarty. How are these community projects working out?

Dr. Knott. They are just getting underway, Mr. Chairman. We have yet to receive our first quarterly progress reports on them. But they are getting underway and getting into operation. People are being employed. Training programs are getting underway.

Mr. Fogarty. So this cutback has almost cut it in half.

Dr. Knott. Yes.

Mr. Fogarty. How else has it affected the program?

Dr. Knott. We had a reduction of 20 positions, which curtailed our plans for assignment of personnel to States and communities to serve as project coordinators and supervisors of these projects.

In the matter of project grants, $631,000 was placed in reserve. This will mean a curtailment of 20 to 25 community projects for testing, developing, and demonstrating new methods and techniques for providing community health services.

Mr. Fogarty. So, all in all, this cutback has really affected your program just about across the board.

Dr. Knott. That's right.

PROPOSED USE OF RESERVES IF RELEASED

Mr. Fogarty. If a person were successful in getting the Secretary, the Bureau of the Budget, and the President to release these funds, what good could come of it? Are you ready to go ahead and use them?

Dr. Knott. Yes, sir. We have 23 approved projects which could not be funded. We have 19 additional projects which were deferred for technical reasons, but they are potentially approvable if we can get out and work with these individuals and assure them that funds would be available.

So, all in all, we would have a total of 23 plus 19, or 42 more projects which we could consider for funding under this cooperative agreement arrangement.

Mr. Fogarty. Can you provide a statement for the record that would show how much could be saved on a national basis if these funds were released?

Dr. Knott. It would have to be an estimate.

Mr. Fogarty. It would be an estimate.

Mr. Ackerman. Mr. Chairman, this sort of thing is much more easily done by example when you have an Essex or another type of project.

Mr. Fogarty. I don't care how it is done. Do you understand what I am trying to get?

Mr. Ackerman. Yes, sir.

Mr. Fogarty. I am trying to get the Secretary and the President to change their minds and release these funds. That is why I am asking these questions.

Dr. Knott. That is a difficult figure to derive, Mr. Chairman; but certainly we can do our best to give you an estimate.

Mr. Fogarty. We know it is difficult, but we think you are doing a pretty good job, and that you can provide that information.

(The requested information follows:)

ESTIMATED SAVINGS POSSIBLE WITH RELEASE OF $562,000 RESERVE

Though no exact figures are available on the actual costs of inability to apply knowledge in the treatment of selected patients at home, a recent pilot study of home nursing services in Colorado shows that the availability of home nursing services saved the average selected patient 12 days of hospital care. Net savings to the patient of slightly over $250 per patient are estimated.

With the $562,000 placed in reserve, it had been planned to provide initial support for some 20 community projects in home health services, information and referral services, and nursing home care improvement. Fifteen of these planned projects, estimated to cost $420,000 were to be in the area of home health services and during initial year of operation could be expected to provide home health services to at least 1,500 patients in communities where such services are not now available. Projecting the patient savings indicated in the Colorado experience, a total net savings of $375,000 appears reasonable in these 15 projects.

If we assume all of the 1,500 patients were able to pay for these services, the $375,000 represents savings to the individual. If a portion of the patients were not able to pay for these services the savings represented are savings to the community.

ACTION ON RESERVES RELATED TO ACTION ON BUDGET REQUESTS

Mr. FOGARTY. Congress approved $7 million of this supplemental that was requested just about the time they were talking about putting some of your funds in reserve. Within a matter of weeks someone in the executive branch put $1,193,000 in reserve for savings.

Now you are back asking us to double the appropriation. This isn't your fault, I understand. But would it be unfair to say that this is an off-again, on-again attitude toward a very important national problem? That may be an unfair question to ask you, so I will let Mr. Kelly answer it, if he wants to.

Mr. LAIRD. He usually volunteers.

Mr. FOGARTY. This certainly is an off-again, on-again deal as far as this program is concerned.

Mr. KELLY. I think we did explain to the Congress the need for funds, and I don't have any question but what, when we explained the need, the need existed.

Mr. FOGARTY. That is probably an unfair question to ask you, too.

Mr. KELLY. I don't think it is fair to characterize it as an on-again, off-again situation, because we are making a substantial expansion this year. As you know, every reserve made was a portion of an increase. We are making a large increase and asking for a larger one next year, although I think it can be made to sound ridiculous that we didn't use all the funds that we asked for this year and are asking for a larger increase next year.

Mr. FOGARTY. You took the words right out of my mouth. I don't agree with you that it isn't an on-again, off-again approach. Here you are on September 18 asking for $7,075,000; and at the same time there is talk about cutting back the expenditures for 1962. Then, in a matter of weeks, you put $1,193,000 in reserve, in one of the most important programs in the Government which can help save individuals, the local communities, and the States millions of dollars in hospital costs. Then in a matter of weeks after that you send Congress a budget to double the appropriation.

I think this is perhaps one of the best examples of an off-again, on-again attitude that I have ever seen. This doesn't add up to me

PRESIDENT'S ADVICE WITH REGARD TO SAVINGS

The President said:

> I much prefer that obligation authority remain uncommitted where there is any doubt that expenditures would yield substantial returns to the national interest.

If you were following his advice this is certainly one area which would not have been touched, but apparently his advice wasn't followed in this area.

You have explained that all of this money could be used which was put in reserve.

Dr. KNOTT. Yes, sir.

Mr. LAIRD. Mr. Chairman, I listened to you read the advice of the President to the various Cabinet members regarding savings in 1962. It seems to me that the President's advice wasn't followed. I would like to ask Mr. Kelly who is the Secretary of Health, Education, and Welfare's adviser on these matters if he doesn't follow the advice of the President?

Mr. KELLY. I don't think he would want it said that he didn't follow the advice of the President. As he explained to you, he was faced with the necessity for making a very large reduction. The reduction, as he pointed out, was not quite as large as was originally indicated. But he was faced with the proposition that, if he was going to make this large a reduction, would he make it in a few selected items, or would he make the impact be borne by all the programs where there was an expansion.

He concluded that the best interests of the American people and the best interests of the programs of the Department were served, if you had to make this large a reduction in the Department of Health Education, and Welfare, if the impact was borne by all the programs in which there was an expansion on an equal basis; that it would carry out the wishes of the Congress and fulfill the national interest of these programs to a greater degree than if it were done with a selection and a heavy impact being made on a few programs.

Mr. FOGARTY. But that is not what the President wishes observed in this area. From that quotation, I don't think there is any doubt that he wanted you people to be selective. This is not taken out of context; this is just what he said. This is his statement:

> I much prefer that obligation authority remain uncommitted where there is any doubt that expenditures would yield substantial returns to the national interest.

I don't know whether you agree with me or not, Mr. Kelly, but I think our hearing record indicates clearly that reserves for the Food and Drug Administration and the Office of Vocational Rehabilitation will result in curtailing expenditures that would yield substantial returns to the national interest.

You said you thought the Secretary would satisfy Congress by this method of making reductions. I don't know on what basis you make that statement.

Mr. KELLY. I said more nearly satisfy Congress.

Mr. FOGARTY. No committee of Congress was asked one single solitary thing about these cutbacks. I don't know what basis you have for saying he was trying to satisfy the Congress. That is news to me.

OPPOSITION TO ACROSS-THE-BOARD CUTS

Mr. Kelly. If I said that, I would like to modify it to say that the across-the-board approach appeared to us to more nearly satisfy the Congress than it would have if we had made a selective approach.

Mr. Fogarty. But this committee has for years said in reports and in debate on the floor that we did not agree with across-the-board cuts in appropriations; that we ought to listen to the evidence and let every program stand on its merits.

If there are any cuts to be made, let them be selective cuts. If there are increases to be made, let them be on a selective basis on the merits of the program and the testimony that is given to the committee.

That is how we have always operated.

Mr. Kelly. Nobody could agree with you more than I on that, Mr. Chairman. The problem that has confronted us here is that, if you had to make a cut of this magnitude, could you select one or two programs, and say that it would be in the national interest not to expend the funds. We could not arrive at that conclusion, and therefore made an across-the-board cut.

Mr. Fogarty. Of course that is the quickest way of making a cut and perhaps the easiest way to make a cut. But I think it is against the best interests of the people to make cuts that way.

I can't speak for the Senate, but I can speak for this committee. This committee was not consulted. The first thing I knew about it was when I read it on the front page of the New York Times.

Mr. Laird. Mr. Kelly certainly worked on that answer; he added one or two new twists this time.

Mr. Fogarty. That thing about satisfying Congress was a new one. What was the other new twist?

Mr. Laird. That was the major new ingredient.

TRANSFERS BETWEEN APPROPRIATIONS

Mr. Fogarty. Dr. Knott, please explain the two transfers between this appropriation and the appropriation to "Community health practices and research."

Dr. Knott. Mr. Chairman, I think that represents $2 million in the 1962 appropriation that was earmarked by the Congress for the improvement of care of patients in nursing homes, and it was brought into the Community Health Services and Facilities Act to become a part of the matching grants for the States.

Mr. Ackerman. The other transfer out, Mr. Chairman, is $75,000 in grant administration funds which follows the standard pattern in the Public Health Service in which the Division of Community Health Services administers all of the State grant programs, and this money was to enable them to carry out that function.

INCREASE FOR GRANTS TO STATES

Mr. Fogarty. By far the greater part of this increase, $10,681,000, is for grants to States. I see this is in two parts: $7 million and $3,681,000. Would you tell us the difference and why you think each part of the increase is necessary?

Dr. KNOTT. Mr. Chairman, the $7 million is on a matching basis and is allocated to the States on the basis of the proportion of their population 65 and older—60 percent on that basis and 40 percent on the basis of total population, both weighted by financial need.

These are funds which are given to the States to develop their programs in chronic illness and health of the aged. They come under the State control on the basis of plans submitted to the Public Health Service and approved by the Public Health Service.

The $3,681,000, Mr. Chairman, is for project grants. These are moneys that are used to finance and assist the nonprofit agencies that desire to develop studies, demonstrations, and experiments leading to new and improved plans. This is more of a study and demonstration item, rather than a service item such as the assistance to States, for which the $7 million is provided.

Mr. FOGARTY. Will you supply for the record some specific examples of what is being done now in each part of this grant program?

Dr. KNOTT. Yes, we can, sir.

(The requested examples follow:)

EXAMPLES OF USE OF STATE GRANTS AND PROJECT GRANTS

Typical of the different kinds of things States are doing with their formula grant funds are—

1. State receiving $262,000 plans to support 17 community projects throughout the State ranging from nursing home improvement, to homemaker services, to nursing care of the sick at home, to well-oldster clinics. information and referral programs, physical therapy centers. Support for individual projects is for limited periods of time at end of which support is shifted to other projects in other communities.
2. State receiving $40,000 plans to step up statewide program for improving nursing home care through nutrition, nursing, and rehabilitation consultation to nursing home operators. Also plan to partially support the establishment of nursing services in the home in three of their largest communities.
3. State receiving $56,000 plans to continue nursing home improvement program initiated last year and in addition begin homemaker service demonstration projects in 11 communities. This State also plans a followup study of all patients leaving their chronic disease hospitals to find out what happens to these patients and to determine what action should be taken to prevent their reentering the hospital.
4. State receiving $74,800 plans to concentrate major portion of funds to partially support two communitywide projects for improving services to the chronically ill and aged in two of its most populated counties. One project will expand limited home care services to people in nursing homes and in their own homes and the other will demonstrate a nursing home care improvement program by adding consultative services, with the added services also being made available to people in their own homes.

Under project grant authority provided in section 316 of the Public Health Service Act, project applications are being received from official State health agencies, community health agencies, State or local voluntary agencies, and from national voluntary agencies. Typical of each category are the following:

1. *Pennsylvania Department of Health.*—Study of health needs and problems in population of a rural county through household interviews of residents 60 years of age and over. Data on problems of chronic disease, impairments, and limitations imposed on activity and mobility will be evaluated, and programs to provide comprehensive nursing and related services to satisfy the current needs will be developed, $36,700.
2. *Santa Rosa Medical Center, San Antonio, Tex.*—Demonstration of how provision of hospital-based, low-cost comprehensive health services to patients in their own homes can hasten recovery and facilitate an early return to functional activity, $126,000.

3. *Citizen's Committee for Public Health, Pennsylvania.*—Study to determine how many adults in southeastern Pennsylvania living in their own homes have difficulty in performing the simple activities of daily living because of disability resulting from strokes and other disabling conditions; to determine how many of these persons might be helped by instruction and therapy in their own homes, and to establish a referral service to help them secure appropriate in-home treatment, $20,000.

4. *American Public Health Association.*—A 24-month study of community health needs and practices in sample communities with resulting data to be reported to public and health leadership through a national conference, $200,000.

CONTROLS ON GRANTS TO STATES

Mr. Fogarty. What controls do you have to assure that all of the grant money is spent on chronic diseases and health-of-the-aged programs?

Dr. Knott. In the first place, Mr. Chairman, the State plans as developed are reviewed by the Public Health Service and approved or disapproved on the basis of whether or not they strictly adhere to the purpose of the appropriation.

The project grants are submitted by any nonprofit agency. They are sent directly to the Public Health Service. Copies are distributed to the State health departments and to our regional offices for comment and review, and they are also distributed to the divisions within the service for technical review and evaluation.

These are then submitted to an intramural committee within the Bureau of State Services, which discusses them, evaluates the projects, and determines which ones should be financed and which should not, and which should be deferred.

ADVISORY COMMITTEE

Mr. Fogarty. This is the area we talked about the other day where there are no nongovernmental advisory committees.

Dr. Knott. Yes, there is, sir.

Dr. Terry. We have an advisory committee, Mr. Chairman. But the advisory committee serves in an overall advisory capacity in relation to the program and does not review the individual projects—as is done, for instance, with our advisory councils at NIH.

Mr. Fogarty. What good is this kind of an advisory council?

Dr. Terry. I think it is very good. I think it is very important to have the broad general advice without having them actually tied up with all of the little minutiae of each individual project. They discuss with us program plans and directions in which the program is going, without passing on each individual project, Mr. Chairman.

Mr. Fogarty. I thought the Institutes of Health had been bragging about their system for approval of grants for years. That is one of the justifications we have been using to get more money for the Institutes of Health, that each grant is approved by on advisory council.

Dr. Terry. I did not mean to discredit the mechanism which is used at NIH, because I too think it has been a very valuable one. As you know, I have worked quite closely with some of those study sections and councils, and I think it is quite valuable.

CONTROL ON EXPENDITURE OF STATE GRANTS

Mr. FOGARTY. How do you know it is being spent for these purposes, then, once it is given to the States?

Mr. KELLY. Could I add to what Dr. Knott said? This form of grant to the States is not unlike our other earmarked grants to States for tuberculosis, mental health, and so forth.

Mr. FOGARTY. But in some cases we are not sure.

Mr. KELLY. We have an audit requirement that they follow the plan. If they use the funds for a purpose other than the categorical earmarked purpose of them, the auditors are required to take exception to it, even though it may be a very worthwhile purpose. These funds are only available to expand and support programs in this particular category.

Mr. FOGARTY. Are they audited every year?

Mr. KELLY. We endeavor to do it every year, yes, sir.

Mr. FOGARTY. Do you?

Mr. KELLY. We are not on a current basis.

Mr. FOGARTY. How far behind are you?

Mr. KELLY. We have a backlog of about 59 man-years of work.

Mr. FOGARTY. That is one of the reasons that this Committee insisted that tuberculosis and venereal disease remain line items in the appropriation bill and not be put into a lump sum for general grants to the States a few years ago, when the Bureau of the Budget or the Department or somebody made that recommendation.

So you think you have it fairly well under control?

Mr. KELLY. Yes, sir.

EARLY DETECTION OF CHRONIC ILLNESS

Mr. FOGARTY. Your next increase is $474,000 and 30 positions for the program of early detection. What is this about, and why is it necessary?

Dr. KNOTT. Mr. Chairman, early detection of chronic illness is one of the most effective means we have, based on available knowledge, of preventing the complications and the disabilities that may ensue as a result of chronic illness. We feel, and as I testified last year, that the early detection of diabetes and glaucoma, for example, can control, if not eliminate, disability and complications of these two diseases.

We feel that this should be expanded. We should be looking into such fields as arthritis, and we are doing that. We wish to find a practical test for determining blood uric acid levels because we feel we can then detect those who may be subject to gout; and we do know that there are prophylactic drugs which can prevent serious episodes of gout, and thus prevent bone destruction, particularly in the joints.

This has long been one of the major ways in which we find early various—sometimes symptomless—chronic illnesses which can be referred for prompt medical care.

Mr. FOGARTY. Have you had any problems in this approach with the local medical societies or with the parent group, the American Medical Association?

Dr. KNOTT. In some instances, Mr. Chairman, on a local basis we have run into difficulties with the medical society because they do not understand just what we are trying to do, despite our efforts to explain the values of early detection.

Mr. Fogarty. What happened in these areas? Were you able to resolve your differences, or is this a misunderstanding which still exists?

Dr. Knott. Mr. Chairman, misunderstandings can be straightened out. It is a matter of time and patience and convincing individuals sometimes that this system does have value. Sometimes it is a matter of complications in organization—for example, cancer detection.

It is not a simple matter of taking a test and sending it to a laboratory. Laboratories must be organized. They must have cytotechnicians to examine the hundreds of smears that come in. They must have a good pathologist in order to examine the questionable ones.

Mr. Fogarty. That program is working out without any trouble?

Dr. Knott. We have had troubles on occasions.

Mr. Fogarty. Have you had troubles with the medical profession?

Dr. Knott. Not with the medical profession, but sometimes with individuals who represent a particular branch or specialty within the profession.

Mr. Fogarty. You mean between pathologists and someone else?

Dr. Knott. On occasions that is true, yes.

RESTORATIVE SERVICES

Mr. Fogarty. The other increase is $100,000 and seven positions to expand restorative services. What are you doing now and what more would you do if you get this increase?

Dr. Knott. I think the examples which I gave you last year—namely, "Strike Back at Stroke" and "Strike Back at Arthritis"—are the kinds of activities which we are continuing. Currently we are developing a new technique for individuals who suffer amputation of the leg above the knee. This brochure, like the others, is designed to bring about quick rehabilitation and restoration of function. This will be named, "Step Into Action." It will be a brochure very similar to "Strike Back at Stroke" and "Strike Back at Arthritis."

Mr. Fogarty. How are those programs working out? I was impressed with your testimony last year on these two, especially in the area of strokes.

Dr. Knott. Mr. Chairman, the brochure on stroke has been translated into Yiddish, Spanish, Japanese, and Dutch.

Mr. Fogarty. Do you have a copy of it here? Is this the one that we saw last year?

Dr. Knott. Yes, Mr. Chairman.

Mr. Ackerman. Here is the arthritis one, too.

Mr. Fogarty. What results are you achieving?

Dr. Knott. "Strike Back at Stroke," Mr. Chairman, is a bestseller. We haven't been able to keep up with the demands. New printings have been made. I don't know exactly how many copies have been sold to date, but this we are informed by the Government Printing Office is one which is constantly in demand.

The demand for "Strike Back at Arthritis" is also increasing. We are endeavoring to incorporate these and other appropriate materials in the medical schools, and particularly into their curriculums—the principles of restorative care and rehabilitation.

We are working with a number of medical schools in developing educational materials that can be used to help teach the students.

Mr. Fogarty. Has there been a demand by the medical profession for these?

Dr. Knott. Yes, Mr. Chairman.

Mr. Fogarty. Has it been accepted by them?

Dr. Knott. Yes, it has, sir. It has been used by them in many, many instances. These are intended for the physician, as indicated in the foreword.

Mr. Fogarty. Physical therapists, too, I suppose?

Dr. Knott. Yes; but primarily for the physician who can prescribe the specific kinds of exercises that are illustrated in that book.

Mr. Ackerman. As a matter of fact, didn't the American Medical Association collaborate or endorse the booklet? I believe it is on the flyleaf—their endorsement.

Dr. Knott. Yes, that is true, sir.

QUALITY OF NURSING HOMES

Mr. Fogarty. Doctor, you are working with nursing homes now. That is a real problem, isn't it, as far as quality is concerned in many of our nursing homes?

Dr. Knott. That is true.

Mr. Fogarty. Do you have anything to say about it?

Dr. Knott. Yes, Mr. Chairman.

We are making progress in this field. I guess I did not report this at the last hearings, but last May, in 1961, we published the Standard Guide for Nursing Homes, which is intended for those groups who license nursing homes, who accredit them; and it is designed to upgrade the care of patients in homes.

Since the publication of that document, four States have revised their standards, and six others are in the process of revising their standards. In addition, we have recognized the difficulties of the lack of trained personnel in operating nursing homes, and we have taken a number of steps which will help to correct this.

TRAINING NURSING HOME ADMINISTRATORS

In the first place, we have two courses now established, one at Oklahoma University and one at Michigan State University, a training course for nursing home administrators. This is similar to the training course now in operation and which has long been in operation for the training of hospital administrators. These two universities are developing training courses for nutritionists and dietary consultants.

The first one was at Lansing, Mich. We hope that this will give them the opportunity to appreciate the problems, the dietary problems, in nursing homes and train these individuals to give the kind of help and consultation to nursing home administrators and their staffs.

An instructor's syllabus has been prepared for a training course in environmental health factors in nursing homes. Representatives of eight States helped to plan the content of this course. After a pilot presentation, the syllabus will be printed in finished form and, together with visual aids to instruction, will be made available to State health departments in conducting their own training courses.

We have also held and will continue to hold regional seminars, one in each of our regions, to explain a newly developed method in teaching uniform and simplified accounting practices for nursing home administrators. This system was developed by the Division of Hospital and Medcal Facilities, and we are implementing the program through these regional conferences, calling to them key persons in the States who in turn will go back to the States and conduct these courses in accounting practices for nursing home operators.

TRAINING NURSES AIDS

During the past year, using the multiplier method, we conducted workshops and trained approximately 40 professional nurses, using the rapid method of inservice teaching. Each of these nurses is then equipped to train 10 more nurses or to conduct training programs for nurse aids.

It is estaimated that approximately 10,000 nurse aids in nursing homes throughout the country have been trained through this plan and in cooperation with the American National Red Cross Nursing Service.

STATE STANDARDS FOR NURSING HOMES

Mr. Fogarty. I think that is a good summation. It is a very critical area. How many States have developed any standards for nursing homes?

Dr. Knott. As I mentioned, Mr. Chairman, since the publication of this booklet, at least four States have revised their standards and six others are in the process of revising their standards.

Practically every State has some regulation or standard for licensing nursing homes.

Mr. Fogarty. There are a lot yet that haven't done anything in this area, including my own State.

Dr. Knott. That's right. It is a matter of implementing and enforcing the standards and helping the nursing home operators to see what can be accomplished. This is why so many States use consultants in addition to their licensing and enforcing practices.

IMPLEMENTATION OF THE WHITE HOUSE CONFERENCE RECOMMENDATIONS

Mr. Fogarty. You mentioned in your opening statement, I think, that the White House Conference on Aging has been some incentive in this field and has been a great help. As the sponsor of that legislation, I don't think the recommendations that came out of the White House Conference have been implemented to any degree.

I think the Department has fallen down on the job. I said so last week when I introduced another bill to set up an independent commission under the President to carry out a program for the aged, because of the lack of action in this field. It was brought to our attention by the Assistant Secretary of Health, Education, and Welfare, Mr. Cohen, when he appeared on the 30th of January that, after having this money for program expansion available since September, they had hired their first professional people on the day before, the 29th of January 1962.

I think the White House Conference was a successful one, but these conferences, regardless of how successful, are pretty much a waste of time unless the good recommendations that come out of them are put into effect. That hasn't been done.

Dr. KNOTT. Mr. Chairman, may I say this one thing as far as the operations of this one Division are concerned? I doubt whether we could have made the progress that we have made thus far had it not been for the interest stimulated by the White House Conference among States and localities.

Mr. FOGARTY. I think to that extent it has helped. But the national recommendations that came out have not been put into effect. I guess Congress has to assume some of that blame, too, because some of the trouble is that the legislation needed for some of the programs has not been enacted.

Dr. BAUER. Mr. Fogarty, I think you would be interested to know that about 3 months ago we employed Dr. Wilson Sowder, who was the State health officer of Florida, to work directly in the Bureau full time on aging, in order to make all the operating programs conscious of this problem and to make them move toward filling a greater responsibility in this area.

We were very fortunate to get him because he is a leader in this field.

Mr. FOGARTY. I have listened to similar statements for 15 years, but I find out the Department had fewer people employed January 30 than you had a year ago on this problem of the aged.

PROGRESS IN RHODE ISLAND

You talked about all the good this program is doing in the States and what the States are doing. What has Rhode Island done in this field? What have you given to them and what kind of cooperation are you getting? Is Rhode Island doing anything?

Dr. KNOTT. Yes, Mr. Chairman, Rhode Island is doing something. In the first place, we have funded in a cooperative agreement nursing care of the sick at home, Dexter Manor House project in Providence, R.I. That was submitted by that group.

Mr. FOGARTY. When?

Dr. KNOTT. The Dexter Manor House——

Mr. FOGARTY. When was it submitted and when was it approved?

Dr. KNOTT. I can't give you the exact dates at the moment, Mr. Chairman. I can furnish those for the record. But it is within the past month that it was approved. When it was submitted, I would judge, would be about 2 or 3 months before that.

Mr. FOGARTY. Just supply that for the record.

Dr. KNOTT. Yes, sir.

(The information follows:)

DEXTER MANOR HOUSE PROJECT

The Dexter Manor House request for support in the amount of $18,240 for the first year of operation was received October 19, 1961, and was approved for funding December 11, 1961. The project is expected to get underway as soon as the Dexter Manor facility is completed.

Mr. Fogarty. What else?

Dr. Knott. There are other projects that have been submitted that have not been funded—nursing care of the sick at home by the Rhode Island Department of Health. We have suggested that they may wish to use formula grant or matching grant money for that.

Nursing care of the sick at home in the southern health unit—again by the Rhode Island Department of Health.

Mr. Fogarty. In the southern health unit?

Dr. Knott. This is what they have listed, yes. I think they have divided the State into districts, Mr. Chairman. I think they call this the southern health unit.

There is one submitted by the Rhode Island Council of Community Services serving the Greater Providence area for a homemakers' service, which has not been funded. None of these projects have been disapproved.

In regard to the matching grant funds that have been made available to Rhode Island, in 1962 that amounted to $40,000. Their plans call for expanding the State staff, developing a division of chronic diseases through adding a medical social worker, a planning and program specialist, and a health information specialist. They propose to contract for physical therapy consultation until the program requires full-time physical therapy personnel.

Mr. Fogarty. Have they come up with their matching funds of $40,000?

Dr. Knott. I can't say at this time, Mr. Chairman.

Mr. Fogarty. Will you find out and put that in the record?

Dr. Knott. I will be glad to do that, sir.

(The requested information follows:)

Rhode Island Formula Grant

The proposed plan and budget submitted by Rhode Island was approved as of December 28, 1961, and it was reported that the State was experiencing no difficulty in matching the $40,000 in Federal funds being made available.

Dr. Knott. They also propose to extend the early detection and followup program for diabetes and glaucoma using their formula grant money for that purpose. We have received several project grant applications—one again from the Rhode Island Department of Health—for the development of restorative health services for chronically ill and the aged. Also, from the Rhode Island Department of Health we have one for the development and utilization of preventive and restorative services to the chronically ill and the aged.

Mr. Fogarty. They both sound the same to me.

Dr. Knott. They are the same, sir; I am sorry.

Mr. Fogarty. So actually not much has been done on this program in the State of Rhode Island.

Dr. Knott. I think they are beginning to make progress. I think the Greater Providence area has done a great deal, Mr. Chairman. I think you are familiar with the activities in setting up an informaton and referral service in giving consideration to and getting a homemaker service underway in that area.

Mr. Fogarty. I don't know that much has been done yet, though.

Dr. Knott. I don't think it has been established yet, sir.

Mr. Fogarty. That is what I thought, too. But I thought perhaps you were better informed than I was. When will it be established?

Dr. KNOTT. I can't answer that, Mr. Chairman. I think that is up to the council.

Mr. FOGARTY. You are not going to give them any money unless you get some action, are you?

Dr. KNOTT. No, sir; although I must say action usually follows receipt of money—just the reverse. At least they have gotten the information and have set their plans and do have a project under consideration, sir.

STATE REQUESTS FOR ASSISTANCE

Mr. FOGARTY. Do you have a complete breakdown State by State of applications made?

Dr. KNOTT. Applications made for project grants?

Mr. FOGARTY. Just like you have given for Rhode Island. Do you have that for the other States as well?

Dr. KNOTT. We can make that available, sir.

Mr. FOGARTY. Will you put that in the record?

Dr. KNOTT. Yes, sir.

(The requested information follows:)

STATE REQUESTS FOR ASSISTANCE

ALABAMA

Cooperative agreements received:	
Nursing care of the sick at home	$28,500
Tuscaloosa County Health Department, Tuscaloosa, Ala.	
Project grant applications received:	
Jefferson County Department of Health	33,012
Study to develop a method of combining health department and dental school resources to provide dental services for the chronically ill and aged.	

ALASKA

Cooperative agreements received: None.
Project grant applications received: None.

ARIZONA

Cooperative agreements received: None.	
Project grant applications received:	
Extension of homemaker services	49,571

ARKANSAS

Cooperative agreements received:	
Nursing care of the sick at home	20,000
Arkansas State Board of Health, Ouachita County, Ark.	
Project grant applications received: None.	

CALIFORNIA

Cooperative agreements received:	
Homemaker services	37,300
San Francisco Homemaker Services, San Francisco, Calif.	
Homemaker services	87,500
Homemaker Services of Los Angeles Region, Inc., Los Angeles, Calif.	
Periodic health appraisal	8,000
Rancho Los Amigo Hospital, Downey, Calif.	

Project grant applications received:

California Medical Education and Research Foundation Methods to assess quality of medical care in individual medical practice.	$22, 200
University of Southern California School of Medicine Development of a general purpose health information center.	136, 413
Visiting Nurse Association of San Francisco Augment the services of an existing home-nursing program for the chronically ill and aged.	83, 703
Contra Costa Council of Community Services Home visiting services.	84, 280
San Luis Obispo County Health Department Home bedside nursing service.	20, 765
Homemaker Service of Santa Clara County, Inc Homemaker services.	46, 134
APHA, western regional office Presentation of seminars on medical care, public health administration.	10, 692

COLORADO

Cooperative agreements received:

Nursing care of the sick at home Pueblo City-County Health Department, Pueblo, Colo.	25, 000
Homemaker services Visiting Nurse Association of Denver, Denver, Colo.	31, 000
Coordinated Home Care Services Tricounty health department, and Colorado State Department of Public Health, and dental societies.	12, 000
Central information, referral and counseling services Colorado State Department of Health, Pueblo City-County, Colo.	12, 900
Nursing home services Colorado State Department of Public Health, Denver, Colo.	12, 200

Project grant applications received:

Colorado Department of Health Referral, Coordination and Consultation Service for Chronically Ill of Pueblo.	11, 500
Visiting Nurse Association, Denver, Colo. (3 years) Visiting housekeeper services.	33, 418

CONNECTICUT

Cooperative agreements received: None.

Project grant applications received:

Hartford Health Department (1 year) Dental home care program.	1, 961
Connecticut State Health Department Demonstration of public health nursing supervision and service.	26, 794
Committee on Gerontology, Connecticut State Dental Association.	29, 004
Connecticut State Health Department Statewide program of subsidy to homemaker programs.	62, 700
Connecticut State Health Department: Promotion and evaluation of homemaker services and homemaker training.	

DELAWARE

Cooperative agreements received: None.

Project grant applications received: None.

DISTRICT OF COLUMBIA

Cooperative agreements received:	
Central information, referral and counseling services	$9,600
District of Columbia Department of Public Health, District of Columbia.	
Project grant applications received:	
Howard University College of Medicine	24,953
Second precinct screening and referral service.	

FLORIDA

Cooperative agreements received:	
Nursing care of the sick at home	49,600
Florida State Board of Health, 26 rural counties, Florida.	
Coordinated home care services	39,700
Dade County Department of Health, Dade County, Fla.	
Project grant applications received:	
Dade County Health Department	39,688
Demonstration of coordinated community care for chronically ill and aged.	
State Board of Health	61,094
Extra hospital nursing needs in a retirement area.	
University of Florida School of Nursing	25,328
Nursing care for patients discharged from teaching hospital.	

GEORGIA

Cooperative agreements received:	
Coordinated home care services	12,000
Georgia Department of Public Health, Whitfield, Murray, Fannin and Gilmer Counties, Ga.	
Project grant applications received: None.	

HAWAII

Cooperative agreements received: None.	
Project grant applications received:	
St. Francis Hospital, Honolulu	36,920
Demonstration of coordinated home care.	
Rehabilitation center of Hawaii	37,467
To demonstrate greater utilization of physically handicapped worker in employment.	
St. Francis Hospital, Honolulu	26,400
To determine racial incidence of hearing difficulties and rehabilitate hard of hearing in adults and aged	

IDAHO

Cooperative agreements received:	
Central information, referral and counseling service	38,900
Idaho Department of Health, statewide program, Idaho.	
Project grant applications received:	
Idaho State Health Department	38,906
Study to develop criterion for placement of chronically ill and aged for most effective care.	

ILLINOIS

Cooperative agreements received: None.	
Project grant applications received:	
Child and family services, Chicago (5 years)	33,000
Demonstration of new method of supplying homemaker services.	
Visiting Nurse Association of Kankankee	3,750
Establishment of home nursing service.	

INDIANA

Cooperative agreements received: None.

Project grant applications received:

Visiting nurse service, Fort Wayne Expansion of services to chronically ill and aged at home.	$38, 912

IOWA

Cooperative agreements received:

Homemaker service Des Moines Polk County Health Department, Des Moines, Iowa.	25, 000

Project grant applications received: None.

KANSAS

Cooperative agreements received:

Nursing care of the sick at home Topeka-Shawnee County Health Department, Topeka, Kans.	20, 000
Nursing home services Kansas State Board of Health, State mental hospitals and selected nursing homes.	25, 000
Nursing home services Kansas State Board of Health, 6 Kansas districts.	25, 000
Nursing home services Kansas State Board of Health, statewide study and demonstrations, Kansas.	15, 000
Nursing home services Kansas State Board of Health, statewide demonstrations in Kansas nursing homes.	10, 000
Nursing home services Kansas State Board of Health, statewide program, Kansas.	30, 000

Project grant applications received: None.

KENTUCKY

Cooperative agreements received:

Central information, referral and counseling services Health and Welfare Council of Louisville, Louisville, Ky.	25, 000
Periodic health appraisal University of Kentucky Medical Center, Owsley and Jackson Counties, Ky.	2, 500

Project grant applications received: None.

LOUISIANA

Cooperative agreements received: None.

Project grant applications received: None.

MAINE

Cooperative agreement received: none.

Project grant applications received: none.

MARYLAND

Cooperative agreements received:

Coordinated home care services Prince Georges County Health Department, Prince Georges County, Md.	23, 000
Central information, referral and counseling services Sinai Hospital of Baltimore, Inc., Baltimore, Md.	25, 500
Coordinated home care services Health and Welfare Council, Baltimore, Md.	121, 800

Project grant applications received:

Washington County Hospital, Hagerstown, Md. (3 years) Demonstration of the value of administrative method of coordinating home care.	9, 500

MASSACHUSETTS

Cooperative agreements received:

Nursing care of the sick at home Massachusetts Department of Public Health, 4 communities in Metropolitan Boston area.	$18, 000
Nursing care of the sick at home Massachusetts Department of Public Health, Barrington, Dalton, and Haverhill, Mass.	22, 600
Homemaker services Brandeis University, Newton, Mass.	25, 000
Homemaker services Massachusetts Department of Public Health, metropolitan area, Boston, Mass.	25, 000
Nursing home services Brookline Health Department, Brookline, Mass.	21, 500

Project grant applications received:

Visiting Nurse Association of Springfield, Mass Health programs at housing projects for the aged.	1, 783

MICHIGAN

Cooperative agreements received:

Nursing care of the sick at home Michigan State Department of Health, 16 localities within Michigan.	60, 000
Coordinated home care services Michigan Department of Health, Michigan rural areas.	46, 000
Nursing home services Michigan State University, East Lansing, Mich.	15, 000
Coordinated home care program Wayne County Department of Health, Wayne County, Mich.	100, 000
Coordinated home care Michigan State Department of Health, Lansing, Mich.	27, 600
Nursing home services Michigan State Department of Health, Detroit and Ann Arbor, Mich	41, 000

Project grant applications received: None.

MINNESOTA

Cooperative agreements received:

Nursing care of the sick at home Minneapolis Department of Health, Minneapolis, Minn.	32, 000
Coordinated home care services Minnesota Department of Health, Morrison County, Minn.	25, 000
Central information, referral, and counseling services Minnesota Department of Health, St. Paul, Ramsey, and Dakota Counties, Minn.	25, 000
Nursing care of the sick at home Bloomington Health Department, Bloomington, Minn.	5, 000
Nursing care of the sick at home St. Louis Park Health Department, St. Louis Park. Minn.	2, 600

Project grant applications received:

St. Louis Park Health Department Nursing care.	2, 620
Bloomington Health Department Home nursing care program.	4, 990

MISSISSIPPI

Cooperative agreements received:

Nursing care of the sick at home Mississippi State Board of Health, Gulfport-Harrison County, Miss.	33, 000

Project grant applications received: None.

MISSOURI

Cooperative agreements received:	
Nursing care of the sick at home	$4, 200
Visiting Nurse Association, Springfield, Mo.	
Coordinated home care	51, 000
St. Louis Health Department, St. Louis, Mo.	
Project grant applications received:	
Home care	57, 030
Jewish Hospital of St. Louis.	

MONTANA

Cooperative agreements received: None.
Project grant application received: None.

NEBRASKA

Cooperative agreements received:	
Homemaker services	11, 000
Nebraska Department of Health, Beatrice, Nebr.	
Homemaker services	5, 200
Nebraska Department of Health, Central City, Nebr.	
Coordinated home care services	15, 000
Omaha-Douglas County Health Department, Omaha, Nebr.	
Project grant applications received: None.	

NEVADA

Cooperative agreements received: None.	
Project grant applications received:	
Homemaker services	34, 502
Nevada State Health Department.	

NEW HAMPSHIRE

Cooperative agreements received:	
Nursing care of the sick at home	14, 600
New Hampshire State Health Department, town boards of health.	
Project grant applications received:	
Nursing care of the sick at home, Concord	30, 739
Homemaker services	10, 000
Manchester Family Service Society.	

NEW JERSEY

Cooperative agreements received:	
Nursing care of the sick at home	30, 000
New Jersey State Department of Health, North Hudson County, N.J.	
Coordinated home care services	17, 900
Essex County Medical Society, Essex County, N.J.	
Coordinated home care services	12, 000
New Jersey State Department of Health, Passaic County, N.J.	
Nursing home services	22, 000
New Jersey State Department of Health, 4 locations (dental) in New Jersey.	
Coordinated home care services	29, 300
New Jersey State Department of Health. Various agencies within New Jersey.	
Miscellaneous (health education)	14, 600
United Hospitals of Newark, Newark, N.J.	
Project grant applications received:	
The United Hospitals of Newark, N.J. (health education)	15, 100
Central information, referral, and counseling service	15, 747
Referral Service Agency, Inc., of New Jersey (Trenton).	
Dental services	31, 380
New Jersey State Health Department.	

NEW MEXICO

Cooperative agreements received:

Coordinated home care services Santa Fe County Health Department, Santa Fe, N.M.	$50,000

Project grant applications received: None.

NEW YORK

Cooperative agreements received:

Central information, referral, and counseling services State Charities Aid Association, New York, N.Y.	25,000
Nursing care of the sick at home New York Medical College, New York, N.Y.	25,700
Coordinated home care services Montefiore Hospital, New York, N.Y.	25,500
Coordinated home care services Syracuse City Health Department, Syracuse, N.Y.	35,000
Central information, referral, and counseling services Albany County Department of Health, Albany County, N.Y.	4,500
Periodic health appraisal Erie County Health Department, Erie County, N.Y.	40,000

Project grant applications received:

Comeback, Inc., New York City Integrating therapeutic activity in care of the chronically ill.	57,110
Patient Care Planning Council, Rochester, N.Y Planning institutional and noninstitutional facilities and services in Monroe County.	8,000
Montefiore Hospital, New York City Training program in organized home care.	80,000
Medical and Health Research Association, New York City Health maintenance services for the elderly.	85,000
National League for Nursing, New York Citizen leadership training to support extension of nursing care of the sick at home programs.	44,000
American Public Health Association, New York National study of community health resources and services.	200,000
Family Service Association of Nassau Co., Inc A demonstration of how special services to the aged and aged chronically ill can be coordinated through use of professional and voluntary community service.	65,500
Medical & Health Research Association of New York City, Inc Health referral services for Armed Forces rejectees.	200,752
Rip Van Winkle Foundation, Hudson A comprehensive program to meet out-of-hospital needs for the chronically ill and aged in a rural community.	87,259
Monroe County Health Department, Rochester Study of public health nursing participation in hospital planning for patient care following hospitalization.	32,092
Research Foundation of State University of New York Effect of comprehensive rehabilitation in rehospitalization of patients with long-term disabling chronic disease.	105,110
University of Buffalo Chronic Disease Research Institute Outpatient clinic for the evaluation and rehabilitation of patients with diffuse obstructive pulmonary emphysema.	35,594

NORTH CAROLINA

Cooperative agreements received:

Nursing care of the sick at home North Carolina State Board of Health, Guilford, Mecklenburg, Tyrrell, Gates, and Randolph Counties, N.C.	$24,200
Nursing care of the sick at home North Carolina State Board of Health, Davie, Yadkin, and Wilkes Counties.	25,500
Coordinated home care services University of North Carolina, Chapel Hill, N.C.	16,500
Nursing care of the sick at home North Carolina State Board of Health, Wake County, N.C.	18,200
Nursing care of the sick at home North Carolina State Board of Health, Rutherford and Polk Counties.	26,400
Central information, referral, and counseling services North Carolina State Board of Health, Edgecombe-Rocky Mount, N.C.	11,200
Central information, referral, and counseling services North Carolina State Board of Health, Johnson County, N.C.	20,900

Project grant applications received:

Guilford County Chronic Illness and Rehabilitation Foundation Coordinated service for the chronically ill.	38,000
Halifax County Health Department Home care and rehabilitation of aged and chronically ill patients.	19,180
University of North Carolina School of Public Health Academic preparation of physical therapists for community health responsibilities.	25,691

NORTH DAKOTA

Cooperative agreements received: None.

Project grant applications received:

Fargo City Health Department Demonstration of home nursing care for the chronically ill and aged.	7,000

OHIO

Cooperative agreements received:

Coordinated home care services (dental) Ohio Department of Health, Cleveland, Ohio.	16,200
Central information, referral and counseling services Mansfield memorial homes.	15,000
Central information, referral and counseling services Public Health Federation, Cincinnati, Ohio.	25,000
Periodic health appraisal Public Health Federation, Cincinnati, Ohio.	29,800

Project grant applications received:

Child Health Association Community adolescent health program.	9,540
Children's Dental Care Foundation, Cincinnati Preventive dentistry for handicapped children.	10,690
Columbus Health Department Study of chronic illness services in Columbus and Franklin County.	32,520
Cleveland Hearing and Speech Clinic Use of families in outpatient treatment of adult aphasics.	13,242
Tiffin City Health Department Home nursing program.	7,164
Mount Sinai Hospital of Cleveland Evaluation of a medical care program for older patients in a housing project.	69,138

OKLAHOMA

Cooperative agreements received:

Nursing home services University of Oklahoma, Norman, Okla.	$10,000
Nursing home services Hillcrest Medical Center, Tulsa, Okla.	1,200
Nursing care of the sick at home Tulsa City-County Health Department, Tulsa, Okla.	112,000
Coordinated home care services Oklahoma City-County Health Department Visiting Nurse Association, Oklahoma City, Okla.	14,200
Periodic health appraisal Oklahoma State Department of Health statewide program.	77,300

Project grant applications received:

Oklahoma Health and Welfare Association, University of Oklahoma Community planning for health and welfare.	29,801
Visiting Nurse Association of Oklahoma, Oklahoma City Demonstration of value of early home care of chronically ill by a paramedical team.	29,285
Oklahoma State Department of Health, Oklahoma City Dietary, occupational, and social services to patients in nursing homes.	50,841

OREGON

Cooperative agreements received: None.

Project grant applications received:

Yawhill County Health Department Establishment of a senior citizen's center.	31,550

PENNSYLVANIA

Cooperative agreements received:

Nursing care of the sick at home Pennsylvania Department of Health, Fayette County, Pa.	39,500
Homemaker services Philadelphia Department of Health, Philadelphia, Pa.	29,500
Coordinated home care services Montefiore Hospital, Pittsburgh, Pa.	25,000
Central information, referral and counseling services Philadelphia Department of Public Health, Philadelphia, Pa.	26,600
Nursing home services Pennsylvania Department of Health, Delaware County, Pa.	6,700
Nursing care of the sick at home Bucks County, Pennsylvania Health Department, Bucks County, Pa.	28,800
Homemaker services Community Services Council, Bucks County, Pa.	24,500
Coordinated home care services Hahnemann Medical College and Hospital, Philadelphia, Pa.	23,300
Periodic health appraisal Philadelphia Department of Health, Philadelphia, Pa.	17,600
Nursing care of the sick at home Pennsylvania Department of Health, Indiana County, Pa.	36,700
Homemaker services Council of Social Agencies, Berks County, Pa.	2,400
Periodic health appraisal Philadelphia Department of Public Health, Philadelphia, Pa.	20,100
Periodic health appraisal Philadelphia Department of Public Health, Philadelphia, Pa.	16,200
Nursing home services Pennsylvania Department of Health, statewide, Pennsylvania.	8,500

Project grant applications received:

Bucks County Health Department Nursing care of the sick at home.	$27,000
Bucks County Psychiatric Center and Health Department Mental health aftercare program.	75,000
Bethlehem, Pa. Homemaker Steering Committee Establishment of visiting homemaker service in Bethlehem.	5,000
Pennsylvania Health Department To determine extent by which use of practical nurses in nursing homes will free public health nurses for duty.	9,498
Visiting Nurse Association and Community Services Council (Bucks County) Homemaker services for Bucks County.	24,000
Pennsylvania Department of Health Use of practical nurses in an official health agency.	9,500
Pennsylvania Department of Health Nutrition consultation to hospitals.	8,500
Pennsylvania Department of Health Physical therapy consultation to hospitals.	16,000
Pennsylvania Department of Health Study of Public Health problems and needs of a rural population.	36,700
Heart Association of Pennsylvania Study of needs for inhome instruction for stroke patients.	24,000
Citizen's Committee for Public Health, Pennsylvania A plan to develop new and improved out-of-hospital services in Pennsylvania.	20,000
Visiting Nurse Association, York County Demonstrate use of Public Health nurse coordination for promotion of interagency referrals.	1,845
Bucks County Department of Health Community demonstration dental care program.	13,452
Phoenixville Community Nursing Service Study of feasibility of home physical rehabilitation of the chronically ill and aged by the Visiting Nurse Association.	12,790
University of Pennsylvania School of Dentistry A program to develop resources for dental care of the needy aged.	25,722
Philadelphia Health Research Fund Referral and followup of military service rejectees in southeastern Pennsylvania.	84,211
Woman's Medical College of Pennsylvania Outpatient community health center.	250,000
Pennsylvania Department of Health Pilot health services programs for Armed Forces medical rejectees.	57,995
Lankenau Hospital, Philadelphia Hospital-community health education program.	66,700
United Cerebral Palsy of Pennsylvania, Philadelphia Home care, community planning, and nursing education for the neurologically handicapped, particularly the cerebral palsied.	37,783

RHODE ISLAND

Cooperative agreements received:

Nursing care of the sick at home Dexter Manor housing project, Providence, R.I.	18,200
Nursing care of the sick at home Rhode Island Department of Health, Providence, R.I.	18,200
Nursing care of the sick at home Rhode Island Department of Health, Southern Health Unit.	48,500
Homemaker services Rhode Island Council of Community Services, Greater Providence area.	50,700

Project grant applications received:

Rhode Island Department of Health An experiment to develop, provide, and test the utilization of preventive and restorative health services to the chronically ill and aged.	2,731

SOUTH CAROLINA

Cooperative agreements received:

Nursing care of the sick at home	$21,600
Richland County Health Department, Richland County, S.C.	
Nursing home services	8,700
South Carolina State Board of Health, Richland and Spartanburg Counties.	

Project grant applications received: None.

SOUTH DAKOTA

Cooperative agreements received: None.
Project grant applications received: None.

TENNESSEE

Cooperative agreements received:

Nursing care of the sick at home	15,000
Marshall County Health Department, Marshall County, Tenn.	
Nursing care of the sick at home	23,600
Knox County Health Department, Knox County, Tenn.	
Nursing care of the sick at home	27,300
Chattanooga-Hamilton County Health Department, Chattanooga, Tenn.	
Miscellaneous (priorities for aged care)	17,400
Health and Welfare Council, Memphis, Tenn.	

Project grant applications received: None.

TEXAS

Cooperative agreements received: None.
Project grant applications received:

Santa Rosa Medical Center (San Antonio)	126,000
Demonstration and evaluation of a hospital-based coordinated home-care program.	
Fort Worth Society for Crippled Children and Adults	42,534
Home rehabilitation services for the chronically ill.	

UTAH

Cooperative Project Proposals:

Nursing care of the sick at home	30,700
Weber County Health Department, Weber County (Ogden), Utah.	

Project grant applications received: None.

VERMONT

Cooperative project proposals: None.
Project grant applications received: None.

VIRGINIA

Cooperative project proposals:

Homemaker services	4,000
Charlottesville and Albermarle County Visiting Nurses Association, Charlottesville, Va.	

Project grant applications received:

Fairfax County Department of Public Health	47,770
A demonstration home-care project in a transitional rural suburban community.	
Health and Welfare Center, Lynchburg	11,360
Evaluation and treatment clinic.	

WASHINGTON

Cooperative Project Proposals

Central information, referral, and counseling services	$22,200
Lee House for Senior Citizens, Seattle, Wash.	
Nursing care of the sick at home	66,500
Seattle-King County Department of Public Health, Seattle, Wash.	

Project grant applications received: None.

WEST VIRGINIA

Cooperative project proposals: None.
Project grant applications received:

Marion County Board of Health	15,384
Health services for the chronically ill and aged.	

WISCONSIN

Cooperative project proposals: None.
Project grant applications received:

Milwaukee Health Department	13,000
Quantitative measurement of nursing service in nursing homes.	
Milwaukee Health Department	12,000
Chronic disease detection for persons 40 and over.	

WYOMING

Cooperative project proposals:

Nursing care of the sick at home	21,600
Wyoming State Department of Public Health, Albany County, Wyo.	

Project grant applications received: None.

GUAM

Cooperative project proposals: None.
Project grant applications received: None.

PUERTO RICO

Cooperative project proposals: None.
Project grant applications received: None.

VIRGIN ISLANDS

Cooperative project proposals: None.
Project grant applications received: None.

Mr. Fogarty. Do you have anything else you want to say?

Dr. Knott. I think that completes the story. There is one other point, Mr. Chairman, which I should have mentioned.

HISTORY OF BUDGET REQUEST

Mr. Fogarty. What did you ask the Bureau of the Budget for?

Mr. Ackerman. The request to the Bureau of the Budget was for $28,200,000.

Mr. Fogarty. They cut you back about $4½ million. Will you put in the record what you asked the Department for and what the Department asked the Bureau of the Budget for, and give us a complete breakdown of those reductions.

You asked the Department for $31 million; they cut you down to $28 million. Then the budget is $22 million now. Right?

Mr. Kelly. That's right.

Mr. Fogarty. So give us a complete breakdown of the Department's cut in your budget and also the Bureau of the Budget's cut.

(The requested information follows:)

Development of 1963 President's budget—Chronic diseases and health of the aged

	Preliminary estimate to Department of Health, Education, and Welfare	Reduction by Department of Health, Education, and Welfare	Department of Health, Education, and Welfare to Bureau of the Budget	Reduction by Bureau of the Budget	President's budget
1. Grants	$23, 000, 000		$23, 000, 000	$4, 000, 000	$19, 000, 000
(a) To States	17, 000, 000		17, 000, 000	4, 000, 000	13, 000, 000
(b) Project grants	6, 000, 000		6, 000, 000		6, 000, 000
2. Research, training, and technical services	8, 445, 000	$3, 245, 000	5, 200, 000	1, 258, 000	3, 942, 000
(a) General chronic disease and aging activities	353, 200		353, 200		353, 200
(b) Early detection	2, 552, 700	1, 011, 000	1, 541, 700	527, 000	1, 014, 700
(c) Restorative services	534, 000	203, 000	331, 000	100, 000	231, 000
(d) Community health services	5, 005, 100	2, 031, 000	2, 974, 100	631, 000	2, 343, 100
Total obligation	31, 445, 000	3, 245, 000	28, 200, 000	5, 258, 000	22, 942, 000

REDUCTION BY THE DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE, 63 POSITIONS, $3,245,000

2. Research, training, and technical services: 63 positions, $3,245,000

The increase requested would have permitted substantial gains to be made in assisting States and communities to (1) promote health services which would emphasize the early detection and prevention of disabling conditions, (2) encourage the establishment of restorative services and their application at the earliest possible time, and (3) establish out-of-hospital health service programs for the chronically ill and aged.

(*b*) *Early detection: five positions, $1,011,000.*—The effectiveness of early detection activities through organized screening programs in preventing disability has been amply demonstrated. The reduction in early detection activities limited the number and scope of community projects planned, such as (1) to organize periodic health examinations, combined screening programs, and other health maintenance measures, (2) to demonstrate the use of approved techniques outlined in "Strike Back at Arthritis", and (3) to study and develop programs to provide effective procedures for detecting other diseases such as gout, rheumatoid arthritis, peptic ulcer, and kidney disorders. The five positions were for the assignment of medical officers and public health program specialists to State and local health agencies.

(*c*) *Restorative services: 11 positions, $203,000.*—A large proportion of disabling residuals occur as a consequence of needless immobilization of persons affected by long-term illness. The reduction in restorative services activities restricted plans to develop, define, and demonstrate specific program methodology aimed at the prevention and control of disability by early, effective application of restorative services. The 11 positions were planned to be 8 medical officers, nurse officers, physical therapists, and nutritionists, and 3 clerical assistants.

(*d*) *Community health services: 47 positions $2,031,000.*—Community health service demonstration projects offer one means of developing and expanding services for use by those who are sick and disabled. The reduction in these activities meant that approximately 70 new projects at the community level could not be started in 1963. The 47 positions were planned to be 30 medical officers, nurse officers, nutritionists, medical social workers, and public health program specialists for assignment to State and local health agencies as project coordinators and supervisors, and for increased consultative staff; 7 specialists to review and evaluate project applications and progress reports; 5 informational and statistical personnel to analyze, assemble, and publicize project results; and 5 clerical assistants.

REDUCTION BY THE BUREAU OF THE BUDGET: 20 POSITIONS $5,258,000

1. Grants, $4,000,000

(*a*) *To States: $4,000,000.*—Grants are made to each State based on a formula which considers the population over age 65 and the financial need of the State for the purpose of establishing and maintaining community health services. The reduction of $4 million in this type of support restricted the resources through which State programs could be stimulated and developed.

2. Research, training, and technical services: 20 positions, $1,258,000

(*b*) *Early detection: $527,000.*—The reduction in early detection activities resulted in the curtailment of proposed regional and State seminars and training activities designed to stimulate community action in program development and restricted the scope of studies designed to define high risk groups.

(*c*) *Restorative services: $100,000.*—The restorative services reduction limited the range of activities to be undertaken in promoting the widespread application of the concepts and methodology in this area.

(*d*) *Community health services: 20 positions $631,000.*—The reduction in community health services eliminated approximately 20 community projects proposed for initiation in 1963. An increase of $68,000 for annualization of the 1962 program increase was not approved. The 20 positions were planned to be medical officers, nurse officers, nutritionists, medical social workers, and public health program specialists for assignment to State and local health agencies as project coordinators and supervisors, and for increased consultative staff.

NEED FOR FUNDS ORIGINALLY REQUESTED

Mr. Fogarty. Do you want to say something in general about what you might have accomplished if your original request hadn't been cut? What do you think you need that you are not getting this year?

Dr. Knott. I think what we expressed as need is the figure which we submitted for review by the Bureau of the Budget. I think we could utilize the funds that we requested in that, Mr. Chairman, because I think the States are ready to roll and are beginning to take up this problem of chronic illness.

As I indicated in the opening statement, this has been a tooling-up year. We have progress to make. There is no question about that. But I think progress is being made.

Mr. Fogarty. When will you have your first quarterly reports?

Dr. Knott. I should judge by March we should begin to receive the first quarterly reports.

Mr. Fogarty. Will you see that the committee gets information on the first quarterly reports?

Dr. Knott. Yes, sir.

HOSPITAL-NURSING HOME COOPERATION

There is one other area which I should like to mention and should have mentioned in connection with nursing homes.

We have been attempting to develop better working relationships, where there have been no working relationships in many instances between nursing homes and hospitals. We feel that both contribute to each other.

I think an experience 2 weeks ago fully illustrates the point I am trying to make. I was visiting the Thayer Hospital in Waterville, Maine. Upon arrival I made ward rounds with my good friend, Dr. Harold Willard. He was pointing out to me a lady who had just come into the hospital a few days before, who had been in a nursing home, bedridden for 2½ years.

The next morning I saw her in what is called the gymnasium—really the physical therapy department. She was taking her first step, Mr. Chairman, and I wish you could have seen the expression on her face as this first step was taken after having been in a nursing home bedridden for 2½ years with stroke.

What the Thayer Hospital is doing is working with the nursing homes. They are reviewing the cases in eight nursing homes within the vicinity. About one out of every five cases they see are people who can be restored and people who can be rehabilitated, if no more than just to get them out of the nursing home and into their own homes.

At the same time they are working with the nursing home operators to develop the techniques and training their personnel to give these kinds of services to their people so that people do not remain bedridden and become more disabled under those conditions.

Mr. Fogarty. I think that is an excellent example of cooperation.

Dr. Knott. Now, Mr. Chairman, this lady probably in 2 or 3 months will be able to walk, probably by herself. The question then arises: Where does she go? Does she go back to a nursing home? If she does, at least the nursing home is aware of what is necessary to keep her on her feet. But she could go to her own home if there are some simple community helps that would enable her to live in that home and to give her guidance and help from time to time.

The nursing service, perhaps a homemaker who comes in once in a while, a dietitian who can help her with developing the kind of diet she needs—these could be accomplished if the community had the services to provide for that kind of individual. This is only one illustration.

This happened to be a stroke case, but I saw many other cases there. What we are trying to do—and we have just developed a film on this subject—is to improve working relationships between hospitals and nursing homes.

There are many individuals in hospitals who are chronically ill who are there for long-term care and who can be adequately cared for in nursing homes if the nursing homes were to know what is proper care and management for these cases.

Likewise, there are many individuals in nursing homes who are there and who are disabled and will continue to be disabled unless someone takes a look at them and provides the kind of service in the way of restorative care and rehabilitation that can put them back on their feet.

I am sure some of these individuals could be cared for in their homes, particularly in homes of their relatives; and the relatives, I think, would be far more willing to care for these individuals if they had the help of the community nurse or a homemaker or someone who could come in and give them the occasional help that is needed and relief from the monotony of caring for bedcases in the home.

ADMINISTRATIVE RESPONSIBILITY FOR NURSING HOMES

Mr. FOGARTY. Do you have any opinion as to whether or not the administration of nursing homes should be under the department of health in the States or in the welfare department of the States?

Dr. KNOTT. Mr. Chairman, I haven't given a great deal of thought to that question, but I would say this in general. Nursing homes are health institutions. Hopefully they would be providing skilled nursing around the clock.

As health institutions, I think they should come under that agency which has the competency to deal with them and to give them the assistance, and also to enforce the standards that are necessary to maintain them.

Mr. FOGARTY. Is there anything else you would like to say?

Dr. KNOTT. No, sir.

Mr. FOGARTY. Thank you very much, Doctor. We shall recess until 1:30.

AFTERNOON SESSION

MONDAY, FEBRUARY 5, 1962.

COMMUNICABLE DISEASE ACTIVITIES

WITNESSES

DR. CLARENCE A. SMITH, CHIEF, COMMUNICABLE DISEASE CENTER
DR. THEODORE J. BAUER, CHIEF, BUREAU OF STATE SERVICES
STEPHEN J. ACKERMAN, FINANCIAL MANAGEMENT OFFICER FOR COMMUNITY HEALTH PROGRAMS
DR. LUTHER L. TERRY, SURGEON GENERAL
JAMES F. KELLY, DEPARTMENT BUDGET OFFICER

Object classification

[In thousands of dollars]

	1961 actual	1962 estimate	1963 estimate
11 Personnel compensation:			
Permanent positions	4,372	4,839	5,140
Positions other than permanent	123	123	142
Other personnel compensation	58	45	45
Total personnel compensation	4,553	5,007	5,327
12 Personnel benefits	546	603	631
21 Travel and transportation of persons	379	372	481
22 Transportation of things	79	82	117
23 Rent, communications, and utilities	134	107	141
24 Printing and reproduction	48	50	61
25 Other services	214	236	283
Payment to "Bureau of State Services management fund"	1,635	1,754	1,910
26 Supplies and materials	695	1,478	762
31 Equipment	239	251	349
Total obligations	8,522	9,940	10,062

Personnel summary

	1961 actual	1962 estimate	1963 estimate
Total number of permanent positions	872	940	1,022
Full-time equivalent of other positions	21	21	24
Average number of all employees	747	836	876
Number of employees at end of year	865	888	958
Average GS grade	6.1	6.2	6.3
Average GS salary	$5,720	$5,662	$5,720
Average salary of ungraded positions	$4,738	$4,708	$4,679

Program and financing

[In thousands of dollars]

	1961 actual	1962 estimate	1963 estimate
Program by activities:			
Research, training and technical services (total program costs)[1]	8,490	9,736	10,062
Change in selected resources [2]	32	204	
Total obligations	8,522	9,940	10,062
Financing:			
Comparative transfers to other accounts	5,944	682	
Unobligated balance brought forward		−892	
Unobligated balance carried forward	892		
Unobligated balance lapsing	33	233	
New obligational authority	15,393	9,963	10,062
New obligational authority:			
Appropriation	15,393	10,000	10,062
Transferred to "Operating expenses, Public Buildings Service," General Services Administration (75 Stat. 353)		−37	
Appropriation (adjusted)	15,393	9,963	10,062

[1] Includes capital outlay as follows: 1961, $270,000; 1962, $217,000; 1963, $269,000.

[2] Selected resources as of June 30 are as follows: Unpaid undelivered orders, 1960, $245,000 (1961 adjustments −$32,000); 1961, $245,000; 1962, $449,000; 1963, $449,000.

GENERAL STATEMENT

Mr. FOGARTY. The committee will come to order.

We have before us now the Communicable Disease Activities.

Dr. Smith, do you have a statement for the committee?

Dr. SMITH. Yes, sir.

We have a long statement that we would like to submit for the record.

Mr. FOGARTY. All right, we shall put that in the record and you can go right ahead.

(The prepared statement follows:)

STATEMENT BY CHIEF, COMMUNICABLE DISEASE CENTER, ON "COMMUNICABLE DISEASE ACTIVITIES, PUBLIC HEALTH SERVICE"

Mr. Chairman and members of the committee, the proud accomplishments in communicable disease control are rightfully satisfying to us all, but in our satisfaction we must not forget the tremendous job still ahead. In this day of new and emerging health problems, the importance and increasing complexity of the infectious diseases are often overlooked. There is a tendency to complacency which is both dismaying and dangerous.

Those who take the discoveries and miracles of modern medicine as a matter of course should also consider the real gaps in our knowledge. Only this past year our scientists at CDC succeeded in growing a common virus from several viral hepatitis epidemics which seems to be the etiologic agent of this common, but poorly understood, serious communicable disease—and this is only one example of the basic knowledge which we have yet to acquire.

UTILIZATION OF EXISTING KNOWLEDGE

However, of more immediate program concern to us at CDC is the full utilization and application of existing and emerging knowledge in an effort to reduce the 140,000 annual deaths, and the untold suffering and disability caused by infectious diseases.

Our scientists are continually alert to new discoveries that may offer new means of controlling communicable diseases. We gather basic knowledge from many sources, convert it into usable form and channel it in the form of information and services to State and local health departments where it can be used to benefit the people of the United States. As new knowledge is gathered, it must be adapted in the development of disease control techniques for use under varying environmental and economic circumstances. This involves evaluation of research findings in terms of practical disease control, their integration with currently used techniques for improved effectiveness, or the development of new methods or equipment for full utilization of the new findings. Illustrative of our approach is the manner in which we are exploiting the recent breakthrough in the development of measles vaccine and our program in the area of staphylococcal and other institutionally acquired infections.

With this general background, we can move into some of our specific problems and activities.

NEED FOR LABORATORY IMPROVEMENT

Adequate and accurate laboratory work at State and local levels is the keystone of all effective communicable disease public health programs. However, pilot evaluation studies demonstrate marked inadequacies in even the less complex diagnostic tests in laboratories throughout our country. The States recognize these inadequacies and are anxious to cooperate in a program to remedy any defects they may have. These growing local deficiencies can only be corrected by a vigorous national, but cooperative, laboratory improvement and reference service program. This was emphasized by the executive committee of State and Territorial Public Health Laboratory Directors in a resolution recommending that the Communicable Disease Center expand its present program of evaluation and standardization of laboratory techniques and the reagents utilized, with the objective of improving reproducibility of results, uniformity of reporting, and interpretation. The committee also recommended that technical evaluation be conducted on a continuing basis.

This budget will enable the Communicable Disease Center to begin to respond to this need, recognized not only by public health officials, but by the practicing physicians who depend on these laboratory tests for diagnosis and treatment.

NATIONAL LABORATORY IMPROVEMENT AND REFERENCE SERVICES

Advice, guidance, and recognition of needs vary greatly from State to State. Scientific developments, however, are sufficient to permit agreement on priority needs and we will work closely with recognized scientists within and outside government. This program will cut into and through all competencies of the center—a facility uniquely organized and directed to meet these needs. Consultative visits will be an important phase of this program. Other phases include accelerating the Communicable Disease Center training programs; providing reliable reference sera and antigens and checking specimens that the State laboratories could use as reference; performing site visitations; and implementing standardized procedures in all areas.

HEPATITIS

Beginning in 1958, reported cases of viral hepatitis have shown a continuing increase each year with an all-time high having been reached in the United States in 1961 with the reporting of over 70,000 cases. During this period, it has become evident that the epidemiology of viral hepatitis presents many problems, with sources of infection ranging from water supplies, contaminated foods, and person-to-person contact to contaminated syringes used in giving injections. Once the causative agent is isolated and characterized, whole new areas of activity will be opened up in the specific laboratory diagnosis of cases, in the investigation of outbreaks, in the maintenance of a nationwide surveillance program and, hopefully, in the development of effective vaccines.

INFLUENZA

Among the respiratory infections, influenza is a major contributing factor to the disability of man and causes excess mortality in certain groups. For example, the recent introduction of Asian influenza into this country and its movement from coast to coast resulted in 86,000 deaths in excess of the number normally expected. Such deaths can be prevented in large part by the early use of vaccine, particularly in the high-risk groups of the aged, chronically ill, and pregnant women. There is some indication that a shift in antigenic structure may be starting which will necessitate a close watch to insure that vaccines produced for next year will be effective. This will be accomplished through the activities of the WHO Influenza Strain Study Center at CDC and by the nationwide influenza surveillance program of the center.

HISTOPLASMOSIS

Histoplasmosis and other mycoses have become recognized as important public health problems. They cause millions of mild infections and thousands of cases of severe chronic illness. We are currently carrying on epidemiological field studies, including casefinding investigations on the natural history of the fungus, and host susceptibility. Techniques are now available to conduct extensive studies to search for reservoirs of the fungi in nature and to test practical and economical means for their elimination. In drug trials, 20 hospitals are cooperating with us and approximately 500 patients are under close clinical and laboratory scrutiny. An expanded program in these promising areas is planned in 1963.

POLIOMYELITIS

Despite the progress that has been made since the introduction of Salk vaccine, poliomyelitis continues to present problems. The 1961 national poliomyelitis vaccination survey shows that 38 percent of the population under 60 years of age, or more than 59 million persons, have not received any Salk polio vaccinations and another 46 percent have received less than the recommended number of shots. A substantial proportion of the unprotected group is children under 5 years of age, of whom less than half have been protected through vaccination even though this age group is particularly susceptible to the disease. Even more strenuous efforts must be made to maintain complete and current surveillance of the status of the disease, to continue the evaluation of vaccines and vaccination programs, and to develop methods of reaching the unprotected segments of the population.

GASTROENTERITIS

Gastroenteritis, one of the acute disabling conditions of man causing millions of days of restricted activity and work loss each year, is more and more being related to viruses, some of which are still to be characterized. From laboratory studies and epidemiologic field investigations, it is hoped that a clear picture of the etiology and methods of transmission of these infections can be developed which will permit the establishment of effective and practical control measures.

COMMUNICABLE DISEASE CONTROL DEMONSTRATIONS

As a means of increasing application of communicable disease control techniques, many demonstration projects of a categorical nature have been conducted in cooperation with State and local departments of health as a means of encouraging and assisting them in adopting adequate control programs. Techniques for motivating community action have been successfully employed in these categorical programs actively supported by State and local departments of health. In order to assure rapid development of techniques that will be broadly applicable to State and local departments of health, a comprehensive cooperative project is planned to demonstrate effective means for the prevention of many communicable diseases simultaneously.

Plans for the additional CDC facilities approved last year are nearing completion. Drawings and specifications for the necessary facilities for animal breeding, holding, and grazing at Lawrenceville, Ga., have progressed far enough for us to believe construction will start within a few months. Although plans are less far along, we hope construction at the Clifton Road site will begin in early fall.

SUMMARY

In summary, the improvement of State and local laboratory competency will become the most significantly expanded activity among our several highly important endeavors to further the control of communicable disease. This request supports a continuing broad program of medical epidemiology, technology, laboratory improvement, and training to State and local health departments for the control, prevention, and suppression of communicable diseases.

For all the purposes included in this estimate, an increase of $1,013,534 is requested together with a decrease in funds for polio vaccine of $892,000 resulting in a net increase of $121,534.

FUNCTIONS OF THE COMMUNICABLE DISEASE CENTER

Dr. Smith. Mr. Chairman and members of the committee, this year the Communicable Disease Center gave substantial assistance to each State and each territory. The assistance requested from us varied from epidemic aid to scheduled training; from short-term technical consultation to long-term assignment of professional staff; from reference diagnosis of selected specimens to scheduled training in newer techniques in the laboratory sciences.

We are gratified that these kinds of services are being requested by State and local health departments and that we can contribute in these ways to the maintenance of health throughout the country. As basic research programs and projects expand and mature, new scientific knowledge is accumulating at an increasing rate. The Federal responsibility for adapting new knowledge to health programs in the communicable disease field rests squarely with the center. As Secretary Ribicoff said last year, "Breakthroughs in research should not be followed by breakdowns in delivery." These words we consider our guide.

POLIO VACCINE

I know this committee is interested—as is the total scientific community—in the use and usefulness of the live polio vaccine for epidemic control. Our experiences during the last polio season have proven that the theoretical possibility of stopping epidemics in a matter of days is an actuality. This fact has been demonstrated in several areas threatened by epedemics; the number of cases have fallen precipitously; and I am sure, large epidemics of paralytic polio need no longer occur. But, until adequate immunization of all susceptibles, particularly children, is attained, polio will remain a public health problem. It does little good to develop excellent vaccines, test them exhaustively for safety and efficiency, and then not assure that they are adequately used.

INFLUENZA CONTROL

A second virus disease, influenza, has been of increasing program importance this year. Not since the introduction of Asian influenza A in 1957 has there been a greater possibility of markedly increased incidence of "flu" than this year. Consequently CDC has spearheaded the program urging vaccination—and has more or less successfully pointed the vaccine usage to population groups at highest risk—the elderly, the chronically ill, and pregnant women. The present vaccine protects against the viruses that are now circulating in this country this year. Nevertheless, specimens from patients which we receive from the 60 participating national laboratories as the WHO Strain Study Center indicate that a shift in the strains may be occurring sufficient to necessitate new vaccine components for use next year. This evidence will be carefully followed this year in our laboratories and evaluated before vaccine components are selected.

HEPATITIS CONTROL

A third virus disease, hepatitis, has reached unprecedented heights this year—the 70,000 cases in 1961 nearly double the previous high of 1954. Our investigation of substantial epidemics were widespread, moving from an Alaskan fishing village to the gulf coast, and many points in between. By the early use of gamma globulin in contacts an undetermined but significant, number of cases of this serious, often disabling disease was prevented. Not only did our efforts extend the local hepatitis control programs, but they also developed clearer pictures of the usual epidemologic patterns and the commonly implicated sources of infection. This new information expands the background necessary for early recognition of epidemics and the initiation of those prophylactic measures that are available.

As in hepatitis much basic knowledge concerning the virus etiology of gastroenteritis, remains to be clarified—new viruses are constantly being characterized and associated with outbreaks of diarrhea, particularly in the new born and infants. By painstaking virology laboratory work, the clinical characteristics of these diseases, all associated with serious diarrhea, are emerging, and the common sources are being determined, and specific control measures developed. Admittedly, control techniques in these conditions are less than ideal; nevertheless, epidemics going from nurseries to the community have been controlled. We are fortunate in having an extremely competent laboratory in a high incidence area—Phoenix, Ariz., devoting a major part of its time to this laboratory problem and able to act as the Communicable Disease Center resource in consultation and support of local control efforts.

LABORATORY ACTIVITIES

Even in such a brief summary of only a few of our activities, the intimate and supporting role of the laboratory sciences to practical control programs is apparent. Without accurate and adequate laboratory activities, public health programs cannot be designed and implemented—in fact, in many fields, diagnosis of individual patients of critical value to the practicing private physician cannot be made.

State health departments, who must be directly responsible for the health of their citizens, are less fortunate than we in having this laboratory competence available to them. The rapid advances in microbiologic techniques have, to an appreciable extent, overrun their abilities, but, encouragingly, they are determined to overcome this handicap. We, of course, are equally enthusiastic about the possibilities of working with them to develop the necessary skills in every State; and, in supporting them by actually increasing our reference diagnosis activities in those few complex, or unusual techniques, that would be uneconomical or impossible for them to justify on the basis of State needs. This activity—the laboratory improvement program—

is the CDC priority program for the coming year. The need for the program is acute; the advantages in nationwide communicable disease control are inestimable.

The Communicable Disease Center is uniquely organized to perform this service since we have already assembled highly qualified specialty laboratories with all necessary technical proficiencies. These need only be expanded with experienced midlevel scientists to staff for this service.

Local inadequacies, growing every year, can be corrected by a comprehensive vigorous laboratory improvement and reference service program. This program will include a stepup in all phases of training, laboratory visitation and consultation, and careful evaluation procedures in all the laboratory sciences. Constant exchange of blind specimens between laboratories will promote consistent self-evaluation by local laboratories and maintain newly acquired competence at the necessarily high level.

The present request, if approved, will support the initiation of this program nationwide, directed this fiscal year toward the identification of the more common diseases with later extension to the new viral diseases.

Mr. Chairman, I would be happy to answer any questions about our activities, or about the budget request.

1963 BUDGET

Mr. Fogarty. The appropriation for 1962 is $10 million and the request for 1963 is $10,062,000. Since there is a transfer to other appropriations of activities amounting to over $700,000, the real increase over the 1962 appropriation is about $800,000 and 82 positions. Is that right?

Dr. Smith. Yes, sir.

TRANSFER OF ARCTIC HEALTH RESEARCH CENTER

Mr. Fogarty. What is this transfer to "Milk, food, interstate and community sanitation?"

Mr. Ackerman. That is a transfer of the Arctic Health Research Center which the organizational study placed in the environmental program area.

Mr. Bauer. I think it was the general sense of the study group and also the Service, that it would be best placed in the environmental health area in order that they could carry out their studies. And this will come up under the discussions of the environmental health budget, in the milk and food area.

RESERVE OF 1962 APPROPRIATIONS

Mr. Fogarty. Of course, we have the usual reserve. In this case, it is $233,000 and 18 positions.

Tell us what you would have done this year if you had this money.

Dr. Smith. We restricted our activities in the biology and disease vectors in Pensacola, Fla.; we decreased our activities in the rabies activities at Poynette, Wis.

We contracted our efforts in the production of cell lines in the laboratory branch of CDC, and eliminated additional meetings, and the purchase of equipment and supplies.

YELLOW FEVER PROGRAM

Mr. Fogarty. What is this vector program down in Pensacola?

Dr. Smith. This is a program that was designed to develop estimates of what it would cost to eradicate the *Aedes Egypti* mosquito from the country. Pensacola was a pilot study only.

Mr. Fogarty. Is that the mosquito that carries yellow fever?

Dr. Smith. Yellow fever; yes, sir.

Mr. Fogarty. That is very important. I thought yellow fever was moving north.

Dr. Terry. Mr. Chairman, if I may remark, I think it is important for this country. And in relation to our international relations, I think it is very, very important. Some of the Central and South American countries have already proceeded to the stage of having eradicated this yellow fever mosquito carrier; yet we in the United States, priding ourselves in being at the top, nevertheless have a band extending across the whole section of the United States from the Rio Grande through Georgia, where the mosquitoes are still there.

At the last meeting of the Directing Council of the Pan American Health Organization last spring, this was a matter for which we were criticized quite openly and, I think, with justification.

This pilot study that Dr. Smith has referred to in Pensacola was one step in the direction to facing up to this problem of what will it take to eradicate these mosquitoes.

In the meantime ,we are proceeding toward setting up a band of eradication along the Rio Grande River to keep from offending our Mexican neighbors further.

But we do hope in time to be able to come up with a program which will allow us to eradicate them completely from the United States.

Mr. Fogarty. So if you have this money then, this would not only, in the words of the President, "yield substantial returns to the national interest," but it would also yield substantial returns to international interests and the developments of more friends to the south of us? It would be in their interest, would it not?

Dr. Terry. Yes, sir; very definitely. It very definitely would be.

PROPOSED INCREASES

Mr. Fogarty. You have your increase broken down into four program items set forth on page 81. Would you put that in the record and explain what you plan in connection with each and tell us why it is necessary?

Dr. Smith. Yes, sir; I will.

(The requested information follows:)

SUPPLEMENTAL INFORMATION RELATIVE TO INCREASES IN COMMUNICABLE DISEASE ACTIVITIES

1. Acute respiratory diseases, $37,000

Influenza, a severe respiratory disease in specific population groups, has reached serious proportions this year. Expanded laboratory surveillance is required to detect new or changing influenza viruses throughout the country, and in the detection of virus activity in local areas.

The adverse impact of the deep mycoses, particularly histoplasmosis, on the total health of the country is significant—causing millions of mild infections and thousands of cases of severe debilitating chronic illness. Circumstances are now favorable for major breakthroughs on several fronts:

(1) Cooperative clinical trials with 20 actively collaborating sanatoria are underway. These trials will be expanded to test both presently available drugs, which are of limited usefulness and, more important, to test promising new drugs now being developed.

(2) Improved laboratory tests, particularly utilizing the fluorescent antibody test, make possible the rapid identification of fungi in soil. Techniques are now available to conduct extensive and continuing studies to search for the reservoir of these fungi in nature and to test practical and economical means for their elimination.

(3) By the use of measured-dose airborne infection in animals, similar to the route of infection in man, the fundamentals of pathogenesis can be elucidated and the immunizing possibilities of killed fungal spores used as a vaccine evaluated.

2. Enteric diseases, $189,034

The enteric diseases—"intestinal flu," wintertime diarrhea, et cetra—account for a large percentage of total morbidity and absenteeism in schools and industry throughout the United States, and the diarrheas are a leading cause of death in infants. Preliminary but comprehensive studies on etiology have resulted in the isolation of enteric viruses from 60 percent of persons with acute diarrhea, but 45 percent of these could not be identified as recognized viral agents and their etiologic role assessed.

These findings require exploitation by (1) extensive field surveys and expanded specimen collection, (2) collection of specimens at shorter intervals of time, (3) examination of contacts as well as acute cases, and (4) evaluation of sanitary conditions affecting the incidence and spread in families and in social groups. Only by obtaining this information can practical and effective control procedures be developed.

3. National laboratory improvement and reference services, $479,500

This program will reduce the time from the development and perfection of new diagnostic procedures to their ultimate utilization by the practicing physician and health worker by disseminating knowledge and new information in the laboratory sciences to States and territories. Recent pilot laboratory evaluation studies have pointed up conclusively marked nationwide inadequacies in these areas. Newer techniques essential for control of communicable disease are totally unavailable in many State laboratories. Limited training programs in representative laboratories have demonstrated their awareness of, and response to, programs which will correct these deficiences.

Specifically, this increase will initiate a nationwide program of—

(1) Standardization of diagnostic methodology.

(2) Evaluation of test results within and between laboratories by specimen exchange.

(3) Consultation, visitation, and trouble shooting.

(4) Improved and expanded reference diagnostic activities.

(5) Supportive training activities.

4. Communicable disease control demonstrations, investigations and consultations, $96,000

Presently available technology for control of communicable disease is not being fully utilized. Methodology for control of many of these diseases either (*a*) is fully available and needs only exploitation by consultation and demonstration or (*b*) requires only minor developmental work for adaptation from research to demonstrations and operations. Utilization of these techniques can be insured through comprehensive practical demonstrations of efficient and economical, locally based programs directed at the most pressing public health needs of the community.

The increase requested for fiscal year 1963 will support one comprehensive demonstration program in a city or metropolitan area. The program will include any or all of the following activities: prevention and control of insect vectors of disease ,dog vaccination and control, institutional infections, the encephalitides, disease surveillance, maintenance of immunization programs, and in particular, specific disease problems of the area.

HIGH INCIDENCE OF HEPATITIS

Mr. FOGARTY. You talked about hepatitis in your opening remarks.

Dr. SMITH. Yes, sir.

Mr. FOGARTY. Is there anything else you want to add to that? This is the worst year we have ever had, is it not?

Dr. SMITH. Yes, sir. Although hepatitis commonly occurs in a cyclic pattern, this is by far the highest that we have ever had since reporting started in 1952.

Although there are real research findings with possibilities for adequate control of hepatitis, at the moment we have taken the stand that adequate application of the present techniques is the immediate necessity. And we have done this by investigating epidemics, by giving gamma globulin to all the contacts, to getting into outbreaks early, so that the techniques that we have will be fully applied.

Mr. DENTON. There are a few questions that I want to ask you.

Is hepatitis caused by a virus?

Dr. SMITH. Yes, sir; it is caused by a virus, or perhaps a group of viruses.

Mr. DENTON. Is there any innoculation to prevent it? Do you have any serum to prevent it?

Dr. SMITH. No, sir. People who are immune to hepatitis are solidly immune. By using gamma globulin, you can create immunity in contacts for a short period of time. There is no long lasting immunizing procedure.

Mr. DENTON. To assist you in research to find an innoculation to prevent it?

Dr. SMITH. Yes, sir. The first necessity is to grow the virus. We, as well as several other scientific organizations in the country, are working hard because we think we are close to accomplishing this.

POLIO IMMUNIZATION EFFORTS

Mr. DENTON. Has anything been done for a universal program for innoculations against polio?

Dr. SMITH. No, sir. There have been sporadic efforts in different communities to increase the use of either the Salk vaccine or the new live vaccines, types 1 and 2, and to increase the public acceptance of these immunizing agents.

Mr. DENTON. I know out where I live they had an innoculation program and they had a great deal of trouble getting this serum. It was on a voluntary basis. But Mr. Laird, Mr. Marshall, Mr. Moyer, and I went to Minneapolis. We went to the Sister Kenney Foundation and the rehabilitation center there. I think if everybody had seen what we saw there, there would not have been a bit of trouble in having a universal program to inoculate children against polio. And I kept thinking when I saw these children what a tragedy it was that they had not been inoculated so that that could have been prevented.

Dr. Smith. Yes, sir; this is true.

The Public Health Service has under study at the present time a plan to increase the utilization of the immunizing agents, not only in polio but in diphtheria, pertussis, and tetanus.

Mr. Denton. Will the Government furnish the serum?

Dr. Smith. To selected age groups only, is the way we are looking at it at the present time. This has not been thoroughly arrived at.

Mr. Denton. Then you have a campaign on in different communities for this inoculation?

Dr. Smith. Yes, sir.

One of the interesting things is that the mere offering of the vaccine does not assure acceptance by the people. The people who accepted the Salk vaccine are much more likely to accept the oral vaccine than are those who do not respond to health appeals in general.

INCIDENCE OF INFLUENZA

Mr. Denton. Now, you say this present epidemic of flu is one of the worst you have had since the Spanish influenza in 1918?

Dr. Smith. No, sir.

Mr. Denton. Is that what you said?

Dr. Smith. I said we would have the highest incidence of flu this year since the introduction of the Asian strain in 1957.

Mr. Denton. I see.

Dr. Smith. Now, the present flu is so-called influenza B which is not closely related to the Asian strain.

Mr. Denton. Would innoculation stop all types of flu, or do you just have to have one for each type of flu that you know of?

Dr. Smith. These have to be specific for the viruses, but the present vaccine includes components for each of those and this year it is effective.

Mr. Denton. I remember when I went down to Montgomery, Ala., and Atlanta, Ga., and you must have had about 20 different kinds of flu germs.

Dr. Smith. Yes, sir.

Mr. Denton. Are they all put together in one?

Dr. Smith. They are put together in accordance with the results of virology that is done in all of the WHO influenza centers.

This is done not only in this country but in all countries. And we, for instance, get all of the flu strains from 70 cooperating laboratories in the United States, so that specimens come into the CDC and we follow their characteristics to be sure that the virus likely to be circulating next year will be in next year's vaccine.

EXTENT OF YELLOW FEVER

Mr. Denton. Now, about yellow fever——

Dr. Smith. Yes, sir.

Mr. Denton. Some years ago, I was in Panama, and there were two things that they spoke about. One was that they said they have the disease there and it was going north up through Mexico. How far has that gone?

Dr. Smith. Human cases have not been reported to us from Mexico.

Mr. Denton. None from Mexico?

Dr. Smith. No, sir.

Mr. Denton. Well, I understood at that time that it had reached Mexico.

Dr. Smith. There has been some question about exactly where it stopped.

Mr. Denton. Of course, there was talk at that time about the danger of the mosquitoes in the United States, if it ever got up there, that it would be very dangerous because the mosquitoes were still there.

Dr. Smith. Yes, sir, this is true.

Mr. Denton. They said when I was down in Panama that there was something else besides the mosquito that was carrying yellow fever and they were trying to find out what it was. Do you know anything more about that study in that respect?

Dr. Smith. Well, the monkeys in the area carried the virus.

Mr. Denton. Yes. Of course, a monkey and possum and squirrel and those other things get yellow fever. But it has to be something other than a mosquito. What is it?

Dr. Smith. A vector.

Mr. Denton. A vector?

Dr. Smith. Yes, sir.

Mr. Denton. It has to be some other thing to carry the disease from the monkey to the squirrel to the human being; but they thought there was some other vector than the mosquito. Do you know anything about that study?

Dr. Smith. No, sir; I do not. I know that the occurrence of yellow fever in humans exactly corresponds to the occurrence of the *Aëdes egypti* and *Haemagognf* mosquitoes.

Mr. Denton. I talked to a doctor from Panama there. I think he was a graduate of the University of Chicago Medical School. Somebody said he knew more about yellow fever than anybody in the world. And he said he had been working on it for a long time but he was satisfied there was something besides the mosquito that was carrying the disease.

ALABAMA INSTALLATION

Do you have a laboratory in the Montgomery, Ala., area now?

Dr. Smith. No, sir. We have moved that——

Mr. Denton. You moved everything?

Dr. Smith (continuing). With our virus laboratory up to the new building.

Dr. Terry. Mr. Denton, in that respect, we do have our radiological laboratories there, operating in the space formerly occupied by CDC.

Mr. Denton. Yes.

Now, you need another installation for horses and larger animals, dogs, I think. Now, what did you do about that?

Dr. Smith. We have temporary dog quarters now at the Chamblee site, which is the site of the old Lawson General Hospital in Chamblee.

Mr. Denton. Yes.

Dr. Smith. And we have all of our animal holding and our special security work in rabies studies at Chamblee.

Mr. Denton. Mr. Laird?

POYNETTE, WIS., LABORATORY

Mr. Laird. Several years ago, CDC got in touch with me about the dedication of the new laboratory in Poynette, Wis. I was unable to attend the opening of the laboratory but appreciated being notified. I understand that, under the 1962 budget, in order to reduce expenses, this was closed. Was this done because of the lowering of the incidence of rabies?

Dr. Smith. This was our best decision of how to come within a ceiling, Mr. Laird.

The Poynette, Wis., rabies station was primarily directed to the investigation of rabies in the skunk and fox. This was also a part of the mission of the rabies center at Atlanta. The scientist who was heading up the Poynette, Wis., organization was going to school next year. Because of this, and since it had never been supported fully by CDC, we thought that one of the savings we could make would be to push forward the closing of this center.

COMPARATIVE TRANSFERS

Mr. Laird. In your statement, you refer to a transfer of funds out of your appropriation. I notice that, in this budget there are 15 or 16 similar situations where funds have been transferred after they have been appropriated to one account. What is the policy of the Departmment on transfers from these appropriations after they have been approved by the Congress on the basis of the justifications that have been submitted to us?

Mr. Kelly. Well, Mr. Laird, we are endeavoring to follow the concept laid down by the committee of the maintaining of the identity of these individual accounts, and we are also trying to accomplish one other objective, which I think that you will feel is well worthwhile.

We have made tremendous strides in the past 3 years toward getting the appropriations to the Public Health Service identified specifically with the organization that is responsible for carrying them out.

Now, you will recall we had a mission and organization study of the Public Health Service a year and a half ago, I would guess, that made a series of recommendations on changes, and as nearly as possible, we brought up the appropriation last year in line with those, but we had not completed the efforts toward realining the organization.

And we have, in this budget, tried to make the remaining adjustments—the most significant ones were made last year—but we have tried to make the remaining adjustments to aline the funds with the administrative official responsible for carrying them out. This is not 100 percent but it is more nearly 100 percent than at any other time in the history of the Public Health Service.

Mr. Laird. These are rather minor ones.

Mr. Kelly. Yes, sir.

Mr. LAIRD. But it seems to me there have been a large number both last year and this year.

Mr. KELLY. Well, we hope that the major objectives last year and this year have been accomplished.

Mr. DENTON. We shall stand in recess briefly.

(A brief recess was taken.)

ENCEPHALITIS RESEARCH

Mr. FOGARTY. The committee will come to order.

Encephalitis. What are you doing in encephalitis?

Dr. SMITH. We have some interesting developments in encephalitis. We have found that there is a positive correlation of spring temperatures with the transmission of St. Louis virus, and a negative correlation with the transmission of western virus.

This led us to the finding that there is not one vector, but probably multiple mosquito carriers, depending on the temperatures and the altitudes of the particular area.

RABIES CONTROL

Mr. FOGARTY. You said you had a cutback in your work in rabies?

Dr. SMITH. Yes, sir.

Mr. FOGARTY. If Mr. Lanham were still living, he would not like that, would he?

I will answer the question: "He would not, because he was instrumental in putting more money in this bill."

Dr. SMITH. Yes, sir.

Mr. FOGARTY. Because it was a real problem down in Georgia at that time.

Is it getting under control, or what are you doing in that respect?

Dr. SMITH. The two exciting notes in rabies control this year, I think, revolve around the Las Crusces field station, where it was discovered that rabies may very well be an air-transmitted disease. Our scientists put susceptible animals in a bat cave and protected them carefully from any insect transmission, and discovered that some of these animals did come down with rabies.

We are repeating that experiment now.

The public health implications would be that people who are spelunkers, who go into caves, either as a hobby or as a part of their work, should be protected before they do this.

The second thing is that we are working in close cooperation with Mexico at the present time in trying to expand and encourage antirabies activities along the border so that sister cities on each side of the border will carry on dog reduction and vaccination programs and predator control at the same time—hoping this concerted effort will eliminate the problem.

TULAREMIA

Mr. FOGARTY. What about rabbit fever?

Dr. SMITH. Rabbit fever?

Dr. TERRY. That is tularemia.

Mr. FOGARTY. I have not heard much about it. What is that?

Dr. SMITH. This is a disease that very often is transmitted from rabbits when a hunter is skinning the rabbit. He gets a puncture wound on the finger or from some other method of contamination and comes down with the febrile disease.

Mr. FOGARTY. What kind of a disease?

Dr. SMITH. With fever.

Dr. TERRY. I think, Mr. Fogarty, in recent years, since we have developed antibiotics, which are quite effective in the treatment of disease, it has been much less of a problem.

We still have the reservoir in our rodents and, in addition to direct contact with an infected animal, of course, it can be transmitted by other means, such as a tick that has fed on an infected rabbit and then bitten a human being.

But, all in all, the problem is much better under control than it was, and it is much less dangerous with the effective antibiotics we now have. We do not have the high mortality rate that we had at one time for persons who get it.

CONTROL OF INSTITUTIONAL INFECTION

Mr. FOGARTY. What about institutionally acquired bacterial infections; have you done much work on this?

Dr. SMITH. I think we have made real progress in this particular area this year. We have increased our consultation to hospitals and State and local health departments by approximately 40 percent. This does not mean, as I am sure that you know, that all of the scientific questions have been answered.

Nevertheless, we have been able, by using those answers that we do have, to control all institutional epidemics at the moment.

It remains to be determined how effective in control are the factors involved in the transmission of these diseases to hospitals and other institutions.

SCHISTOSOMIASIS CONTROL

Mr. FOGARTY. You were here when we talked about schistosomiasis this morning.

Dr. SMITH. Yes, sir.

Mr. FOGARTY. Is there anything you would like to add to what was said about your program in Puerto Rico and what the possibilities are of helping others throughout the world?

Dr. SMITH. We are proud of our activities in schistosomiasis. I think it probably is unfortunate that the fish that eat the snail, which is the host in this disease, is called a shellcracker. It is a type of sunfish which actually, when it is grown in the areas in which the snail occurs, uses the snail as a part of its food supply. Consequently, the fewer intermediate hosts that you have, the less chances there are of infection.

We have also done some good work in skin test development for schisto. Actually, at the present time we are not sure, within wide variation of this disease, either in Puerto Rico or in the world at large, and we hope that the diagnostic skin test will lead to this information.

There is no question but what it is one of the most serious communicable diseases in the world.

Mr. FOGARTY. But you can do something about cleaning up the disease now?

Dr. SMITH. Yes, sir. With the use of the sunfish and also with the use of predator snails that eat the vector snails.

Mr. FOGARTY. Are you working with some chemical also.

Dr. SMITH. Yes, sir. And we are working with herbicides that clean out the stream so that the snails have less coverage and do not multiply so fast—all a reduction program directed at the vector.

FLUORESCENT ANTIBODY TECHNIQUE

Mr. FOGARTY. We have been asking about your study on the fluorescent antibody technique for several years. Have you any new developments here?

Dr. SMITH. Yes, sir. And let me start by giving you an example of how this particular technique can be used in regular public health programs.

In one of our Southern cities, there was an acute outbreak of infant diarrhea in a hospital. This kept going in and out of the hospital in waves, but without ever being eliminated. It was found that this particular diarrheal disease was caused by an organism called E coli.

Mr. FOGARTY. Called what?

Dr. SMITH. E coli. It is a bacteria that has been known for a long time to cause infant diarrhea—serious infant diarrhea.

Mr. FOGARTY. Does it sometimes cause death?

Dr. SMITH. Yes, sir.

Mr. FOGARTY. How many from that infection in this hospital in this period, do you know?

Dr. SMITH. It is hard to attribute, since some of these patients were very sick on arriving, and they had other diseases that might or might not have caused death. Nevertheless, the serious diarrhea and dehydration that they got prevented their recovery if their other disease that they came in for could have been controlled.

We sent one of our scientists down from CDC who set up this fluorescent antibody test right next to the admitting room and made the diagnosis within an hour of admission. When the infant was admitted to the hospital, if this particular organism was present, he was immediately put in isolation so that there was no spread within the hospital. If there were no evidences, that he had the particular organism, he was admitted to the general wards. This way we stopped——

Mr. FOGARTY. It is not something that occurred in the hospital or was it going on in the hospital?

Dr. SMITH. It was going on in the hospital, and it was also going on in the community. So you had to separate the clean admissions to the hospital from the dirty admissions to the hospital to prevent hospital spread. In a very short period of time hospital spread was entirely eliminated.

Mr. FOGARTY. Off the record.

(Discussion off the record.)

Mr. FOGARTY. On the record.

Have you refined the use of this diagnostic tool any? Does it apply to more diseases than a year or 2 years ago?

Dr. SMITH. Yes, sir. It is continuously being expanded as time goes on. The technical difficulties tend to become more difficult, since they are meeting problems that are common to many different organisms, such as baseline fluorescence. But it is not only being used and promoted by CDC at the present time; it is becoming a research tool worldwide. You may have seen in the paper about the use of fluorescent antibody in cancer viruses. It is a basic research tool at the present time.

Mr. FOGARTY. How has it been used in that area?

Dr. SMITH. I do not know the details of this, Mr. Fogarty, but I imagine it——

Mr. FOGARTY. When the Cancer Institute comes in, they can tell us about it?

Dr. SMITH. Yes, sir.

Mr. FOGARTY. Will you supply for the record three or four examples of how this technique is used and its advantages?

Dr. SMITH. Yes, sir.

(The requested information follows:)

SUPPLEMENTAL INFORMATION RELATIVE TO THE FLUORESCENT ANTIBODY TECHNIQUE—CDC

E. coli diarrhea in hospitals and communities

In February 1961, CDC received a request for assistance in investigating an outbreak of E. coli diarrhea among infants in southern Cook County, Ill. The fluorescent antibody technique provided a presumptive diagnosis of E. coli diarrhea in a period of 2 to 4 hours following receipt of the specimens. The epidemic aid given concurrently with training proved extremely beneficial in the management of endemic and epidemic diarrhea due to E. coli.

The fluorescent antibody test for E. coli can be made within a period of approximately 2 hours after receipt of the specimen, whereas 18 to 24 hours are required by the usual procedure.

Rapid diagnosis of diphtheria in an outbreak in Florida

During the late summer of 1961 assistance was requested from CDC by the Florida State Health Laboratory for the control of an outbreak of diphtheria in that State. Employing the fluorescent antibody technique, in comparison to conventional methods, it was shown that diagnosis of diphtheria could be obtained much more rapidly by the former procedure. This technique is relatively new and requires further evaluation but in spite of this, the fluorescent antibody procedure can provide a diagnostic result in a period of 2 to 4 hours following receipt of the specimen, whereas approximately 2 days are required to obtain the same result by conventional procedures.

The fluorescent antibody technique for identification of group A streptococci

The State of Tennessee presently is using the fluorescent antibody technique exclusively for the identification of group A streptococci. By and large, conventional procedures are not being employed since it is felt that the fluorescent antibody test is superior because of its speed and simplicity. The State of Connecticut is employing the fluorescent antibody procedure for detection of group A streptococci has a basic tool for the diagnosis and control of streptococcal diseases, rheumatic fever, and rheumatic heart disease. Last year approximately 30,000 throat cultures were processed by this method. The time required for identification is 2 to 4 hours, whereas, the conventional method required from 2 to 4 days.

Plague diagnosis by fluorescent antibody technique

In August 1961, a specimen from a patient suspected of having died from plague was submitted to the CDC. Through application of fluorescent antibody technique, laboratory diagnosis of plague was made in a matter of hours. Results such as this, which are obtained in a matter of hours as opposed to the usual 1 to 2 weeks required for the animal inoculation procedure, are of great value to the responsibile health officials and quarantine officers in deciding what actions should be initiated.

Mr. Fogarty. Any other questions?

Mr. Laird. I have a question.

Mr. Fogarty. Mr. Laird.

SHORTAGE OF INFLUENZA VACCINE

Mr. Laird. Doctor, I have a very fine clinic in my hometown, of which I am very proud—Marshfield Clinic. I have a letter here from one of the doctors in the internal medicine department, dated January 15, 1962; and he states:

> My final comment is regarding the confusion surrounding the use of influenza vaccine. It has been distressing to me to find the public being urged to obtain influenza vaccine, apparently under the auspices of the U.S. Public Health Service, only to find that the manufacturers are unable to supply us the material that is being promoted.

What is your comment on that?

Dr. Smith. I think I would be the first to admit, Mr. Laird, that there have been shortages of vaccine throughout the country. These have been solved at the present time. Vaccine is available.

Now, in talking this over with the commercial manufacturers, they have more than tripled their production of vaccine this year and, according to their best market research, this amount they thought would be ample. It turned out, perhaps because of the 1957 episode, and perhaps because of the vaccination campaign, that there was not enough vaccine at all times.

At no time has the Public Health Service, or our advisory committee, made a real effort to get complete vaccination of everyone in the country. We have always tried to point this vaccination campaign to the pregnant women, to the chronically ill, and to the aged.

Mr. Laird. Well, evidently the campaign that you have put on has had an effect in getting people to come in to see the local doctors.

Dr. Smith. Yes, sir.

Mr. Laird. And it is true that there was a period of time when they could not supply the vaccine.

Dr. Smith. That is right.

In November and December there were often times that vaccine was not available, either nationwide or locally.

Mr. Laird. How do you keep the local doctors informed about this type of a campaign, the necessity of the campaign, and the amount of vaccine available? These local doctors have to be the people that talk to patients and explain it to them after they have heard something, over the radio perhaps, urging them to take part in the campaign by getting vaccinated.

Then they go to see their local doctor and he does not have any more information about the campaign than his patient has. Do you keep in touch with these local doctors?

Dr. Smith. No; we do not try and keep in touch with them on the amount of vaccine that is available in the country. We try to be aware ourselves of the way the vaccine is being used, and the production.

Dr. Terry. I think he is talking in terms of the fact that we are launching such a program, and the specific recommendation.

Dr. SMITH. In this line, we have such things as this, Mr. Laird [pamphlet], that we produce in conjunction with our advisory committee, and that are reprinted in journals. Because of the particular interest of the population this year, this particular fact sheet was picked up by two drug companies, Wyeth and Pfizer, and reprinted, and through their detail men, got widespread publicity throughout the country. We asked, and our advisory committee did write editorials for the appropriate medical journals. Advertising was placed in the medical journals encouraging physicians to vaccinate people in these three specific categories. And I believe that the general medical community had pretty good knowledge of the particular groups in which this need was greatest.

Mr. FOGARTY. Is there anything else you would like to say, Doctor, before you conclude?

Dr. SMITH. No, sir.

Mr. FOGARTY. Thank you very much, gentlemen.

Dr. SMITH. Thank you.

COMMUNITY HEALTH PRACTICE AND RESEARCH

MONDAY, FEBRUARY 5, 1962.

WITNESSES

DR. WILLIAM H. STEWART, CHIEF, DIVISION OF COMMUNITY HEALTH SERVICES

STEPHEN J. ACKERMAN, FINANCIAL MANAGEMENT OFFICER FOR COMMUNITY HEALTH PROGRAMS

JAMES F. KELLY, DEPARTMENT BUDGET OFFICER

Object classification

[In thousands of dollars]

—		1961 actual	1962 estimate	1963 estimate
11	Personnel compensation:			
	Permanent positions	1,423	1,528	1,928
	Positions other than permanent	9	8	29
	Other personnel compensation	10	2	2
12	Total personnel compensation	1,442	1,538	1,959
21	Personnel benefits	166	162	210
22	Travel and transportation of persons	147	151	234
23	Transportation of things	17	16	24
24	Rent, communications, and utilities	33	30	42
25	Printing and reproduction	23	21	33
	Other services	26	20	230
26	Payment to "Bureau of State services management fund"	61	67	86
31	Supplies and materials	13	15	26
	Equipment	11	12	31
41	Grants, subsidies, and contributions	21,132	20,173	22,900
	Total obligations	23,072	22,204	25,776

Personnel summary

	1961 actual	1962 estimate	1963 estimate
Total number of permanent positions	221	232	303
Full-time equivalent of other positions	1	1	5
Average number of all employees	191	205	264
Number of employees at end of year	197	224	301
Average GS grade	8.8	7.9	8.1
Average GS salary	$6,662	$6,792	$6,825

Program and financing

[In thousands of dollars]

	1961 actual	1962 estimate	1963 estimate
Program by activities:			
1. Grants:			
(a) To States for general health	16,755	15,000	15,000
(b) For public health training	4,377	5,173	7,900
2. Research, training, and technical services	1,945	2,031	2,876
Total program costs [1]	23,077	22,204	25,776
Change in selected resources [2]	−5		
Total obligations	23,072	22,204	25,776
Financing:			
Comparative transfers to or from (−) other accounts	3,727	−75	
Unobligated balance lapsing	336	202	
New obligational authority	27,135	22,331	25,776
New obligational authority:			
Appropriation	27,277	24,336	25,776
Transferred to—			
"Salaries and expenses, Office of the Surgeon General" (42 U.S.C. 226)	−142		
"Chronic diseases and health of the aged" (75 Stat. 733–736)		−2,000	
"Operating expenses, Public Buildings Service," General Services Administration (75 Stat. 353)		−5	
Appropriation (adjusted)	27,135	22,331	25,776

[1] Includes capital outlay as follows: 1961, $7,000; 1962, $8,000; 1963, $20,000.

[2] Selected resources as of June 30 are as follows: Unpaid undelivered orders, 1960, $34,000; 1961, $29,000; 1962, $29,000; 1963, $29,000.

Mr. Fogarty. Dr. Stewart, are you going to justify the appropriation for "Community health practice and research"?

Dr. Stewart. Yes, sir.

Mr. Fogarty. This is the first time you have appeared before this committee as Chief of the Division.

Dr. Stewart. Yes, sir.

Mr. Fogarty. Go right ahead.

GENERAL STATEMENT

Dr. Stewart. Mr. Chairman, this is a summary of the longer statement that we have prepared.

Mr. Fogarty. Put the longer statement in the record and then you may summarize it.

Dr. Stewart. Thank you, sir.

(The statement follows:)

STATEMENT BY CHIEF, DIVISION OF COMMUNITY HEALTH SERVICES, ON "COMMUNITY HEALTH PRACTICE AND RESEARCH, PUBLIC HEALTH SERVICE"

Mr. Chairman and members of the committee, in 1960, the study group on the "Mission and Organization of the Public Health Service" recommended combining, within a single division, activities related to medical care and public health administration. To accomplish this, the Division of Community Health Services was established in the Bureau of State Services in 1961.

Let me tell you briefly why the role of the Public Health Service in today's health picture demands this amalgamation of staff equipped to pursue in harmonious combination the goals of public health and medical care administration. There is no need to belabor this committee with facts about the conventional and traditional public health services which are now widely available. I should like to remind you, however, that those are services provided to the community as a whole rather than to individuals on a personal basis. Although their further extension is needed in both urban and rural areas, of themselves they are no longer sufficient for major health progress. With them must go comparable efforts to develop personal health services which will make more and better medical care available for the population. Assuming a good level of conventional health services, the major weapon we have for influencing the health of the population is medical care. Thus, community medicine for the future requires health care facilities, services, and financing—all maintained in appropriate supply and balance, and organized for efficient use—to bring the benefits of modern medical science to the individual at the right moment and in the right setting.

The National Advisory Health Council in its March 1961 report: "Medical Care in the United States: The Role of the Public Health Service" urged that the Service "assume a major positive role in the conduct and promotion of activities in the areas of medical care organization, economics, standards, recruitment and training, facilities and services development, and research." Establishment of the new Division is the first step to meet this operational demand. The first four of the activities enumerated have been assigned to this Division. The fifth, "facilities and services development," will be shared with the Division of Hospital and Medical Facilities, also in the Bureau of State Services.

Now I would like to give you a few examples of activities already underway. We have in the last year conducted seven regional seminars to familiarize our regional staff with problems and trends in medical care administration, and the projected new goals of the Public Health Service directed toward bringing about the harmonious combination of public health and medical care adminstration to which I referred earlier.

Another example is the production of a "Source Book on Financing Medical Care and Use of Medical Services" which will be available for distribution early in 1962. This publication will provide information on both public and private medical care expenditures; expenditures for hospital, physicians' and dentists' services; nursing homes; drugs and appliances; health insurance; and miscellaneous services. The purpose is to provide in one publication, statistics and information from a number of sources. In most cases, medical care expenditure data for the past 10 to 15 years will be provided. This approach will help to show trends in this area. Statistics showing the use of medical services are also included. This provides an opportunity to show the amount and kinds of medical services received in relation to the cost.

During the next year we shall be involved in broad program planning directed toward all the goals of the Division, but with particular emphasis on achieving those purposes of the Community Health Services and Facilities Act that are related to community health services.

MORE EFFECTIVE COMMUNITY HEALTH SERVICES

In order to carry out these responsibilities, we are requesting additional funds to conduct studies, to provide information, and to strengthen our technical assistance in four areas: (1) Medical care and public health administration, including the organization, financing, and utilization of health services; (2) standards of health care; (3) school health programs; and (4) health services for agricultural migrants.

Community organization

Fragmentation of responsibility has long characterized the provision of the wide array of community health services. Assurance of an uninterrupted flow of health care of high quality to those in need of service is difficult because of intergovernmental, interjurisdictional, and interagency confusion. These problems are especially acute in metropolitan areas. Population mobility raises questions of eligibility for services available under different auspices. Efficient use of resources is impossible when the number and kinds of governmental and nongovernmental jurisdictions present barriers to effective cooperative efforts. Reduced financial sources for the support of health services, both public and private, in core cities multiplies staffing problems.

The rapid changes in our way of life have required major replannnig and rebuilding of water supplies and reorganization of transportation and educational systems. In like manner, major replanning and reorganizing must be undertaken to fill the critical gaps and eliminate the overlaps in personal health services. Large numbers of citizens are involved in this transition to a new way of life. Such changes have important implications for the health of people involved in them. We do not know the consequences of these changes for the physical and mental well-being of those who live in radically changed circumstances. We do know, however, that the present system of public health practice is just as obsolete in the face of the phenomena of metropolitan life as are present jurisdictional boundaries.

Through cooperative studies in several communities, we plan to examine and evaluate new patterns now being tried and to stimulate other communities to redesign and adjust their programs and services to meet the changing health problems of the ever-enlarging community. Patterns of cooperation among public and voluntary health and welfare agencies, hospitals, and the medical profession will be studied in different types of community settings.

Health economics

The rising demand for health services with limited resources for providing them necessitates using these resources in the most economical manner. There is considerable public concern over the spiraling cost of health services, and public confusion regarding the numerous sources and systems of financing. In any one place there are Federal, State, and local funds paying for various elements of medical care to various portions of the community. Add to this the funds from Blue Cross, Blue Shield, several hundred commercial insurance companies, and the funds provided by voluntary health agencies and bewilderment is justified. In one large county there are 59 government sources alone which provide or pay for medical care, each operating with little or no relationship to the other. In addition, there is very little consideration given to the relationship of any one source of funds to the total medical care needs of the community. The result is overdevelopment and use of some elements and underdevelopment of others.

We propose to augment our staff in health economics in order to develop within the Public Health Service a body of information on the financing and utilization of community health services. We also propose to study methods of financing, sources of funds, costs of care, and utilization of services.

Information will be developed on different private approaches to financing medical care and on different public approaches to providing medical care in the United States and abroad. We are particularly interested in studying the impact on utilization and on family expenditures under different methods of insuring for medical care. Other questions for which more information is needed relate to the feasibility and premium cost of insuring nursing home care, home health services, mental illness, and drugs.

In order to carry out these essential studies in the organization of health services and in health economics we need to build within the Public Health Service a cadre of competent personnel familiar with medical care as well as with public health administration.

Standards of health care

A great number of governmental and private agencies have been engaged in the development of health care standards for the protection of users of health services and for the improvement of professional and technical services. Unfortunately, there has been little coordination, cooperation, and agreement among (1) agencies concerned with developing such standards, (2) users of the services, and (3) providers of the service.

The Public Health Service has been concerned about this situation for some time. More recently the American Public Health Association has requested the Public Health Service to accept responsibility for the collection, study, evaluation, and dissemination of information on standards of health care and to function as a central clearinghouse capable of furnishing to interested agencies and organizations advisory services pertaining to the development of suitable standards of health care.

School health activities

In the field of school health, information on problems and new developments in health and medicine are not being channeled out effectively to the many school personnel who need and are requesting such information. These individuals are in positions where they can update the health content of school curriculums, impart new health information, interest students in health careers, and assist our youth in attaining ability to cope with personal and community health problems as responsible adults.

Review of textbooks, conference reports, professional journals, and personal communications indicates need for improved communication of modern public health concerns, practices, research activity, findings, and recommendations.

Experience with three 3-day conferences has established that much can be accomplished by bringing college and university educators together with leading health science personnel to reveiew current information and update the educators' knowledge, understanding, and appreciation for modern community health practice. Need for a comparable program is evident among the health leaders in State, city, county, and local school systems.

Another matter to which our school health staff would like to give particular attention is the improvement of screening techniques employed in school health services so that they coincide with current community health needs and resources.

Health services for agricultural migrants

In the hearings on pending legislation (S. 1130) the needs for improving health conditions and services for agricultural migrants have been thoroughly documented, so I shall not review them at this time. In order to begin to meet these needs we plan to **expand along two fronts:**

(1) Provision of consultation and technical assistance in the migrant health field through an expanded intelligence unit and focal point within the Public Health Service.

(2) Provision of direct assistance to areas of major migrant impact to improve the health services and health conditions of domestic agricultural migrant workers and their families. Here, emphasis would be placed on improving interagency and interstate planning and relationship in the provision of service.

For consultation, a health team, consisting of a health educator, public health nurse, sanitary engineer, physician, medical social worker, several public health advisers and social scientists will be employed in the central office. A similar team will be employed in one of the major migrant streams. It will place emphasis on pilot development and evaluation of interstate agreements and other methods for coordination of services between home-base and related work areas in the States of the stream in which they work.

Direct assistance will be provided by employment of personnel (nurses, health educator, and sanitarian) for temporary loan to key States and localities to facilitate interagency effort and continuity of service as the migrants move.

Finally, contracts for special studies and demonstrations would be made with States and localities with qualified staff and special experience in dealing with migrant health problems.

We believe that by stepping up all the activities I have enumerated we will begin to develop a major positive role for the Public Health Service in the conduct and promotion of medical care organization, economics, and standards, as recommended by the National Advisory Health Council. In addition, we will be able to provide a better quality of technical assistance to the States and localities that will permit more effective use of available Federal grants.

GRANTS TO STATES FOR GENERAL HEALTH

The general health grant has two primary purposes. These purposes, deriving from the words of the authorizing legislation "to establish and maintain adequate public health service" are as follows:

1. To serve as a source of financial support for basic core health organization and services through which most of the more specialized programs operate.
2. To serve as a source of stimulation and support of new and improved programs as the only source of Federal support for those programs which have no categorical grant funds.

The general health grant helps to provide a structure of health organization and such fundamental health services and facilities as State diagnostic laboratories, environmental sanitation, health education, and public health nursing. Because it is flexible in purpose, it is also used by the States to help develop the newer services needed to meet the changing health problems. We are proposing that the general health formula grant be maintained at the present level of $15 million.

GRANTS FOR PUBLIC HEALTH TRAINING

With the ever-increasing demands for new and more complex community health services, there is a continuing and intensified shortage of health manpower. The shortage of trained public health physicians, nurses, engineers, sanitarians, hospital and medical care administrators, medical social workers, nutritionists, and other professional personnel and the need for retraining of presently employed personnel in new and developing fields constitute one of the most pressing problems in public health administration today.

We are attempting to reduce this problem by a three-pronged approach:

(1) Traineeships to persons who have already acquired basic professional qualifications which enable them to undertake graduate or specialized public health training.

(2) Grants to schools of public health to help defray the cost of instruction of federally sponsored students.

(3) Project grants for public health training for development and enrichment of the curriculum of schools of public health, schools of nursing, and schools of engineering.

I cannot overemphasize the essentiality of this program. Because of the extreme need, we are requesting that the appropriation for public health traineeships be doubled (from $2 million to $4 million). The $2 million which has been appropriated for this purpose has supported approximately 625 traineeships each year. Based on past and current experience, this means that only about half of the applications received from qualified applicants can be approved. With the current level of appropriation the program has also had to be confined, as a matter of priority, almost entirely to awarding traineeships for personnel new or relatively new to public health who have no previous graduate or specialized public health training.

By continuing to utilize methods which have proved effective—direct awards to individuals and traineeship grants to training institutions—the Public Health Service would—

(1) Use $3,500,000 of the proposed appropriation to award approximately 1,100 traineeships to support graduate or specialized public health training, about 500 more than can be supported from appropriations at the current level of $2 million. This increased number of traineeships would permit more adequate emphasis to be placed on the following important areas of public health training needs—

(*a*) the support of graduate or specialized public health academic training for personnel among the more than 20,000 individuals already employed in public health work who are inadequately trained;

(*b*) the development of highly trained specialists who require more than 1 year of graduate training;

(*c*) the support of training at the graduate level to prepare members of health professions to teach public health subjects, thus helping to alleviate a critical national shortage of such teachers; and

(*d*) the training of personnel to meet acute and increasing needs in the field of chronic disease control, medical care administration, and other rapidly accelerating public health fields.

(2) Use of $500,000 of the appropriation to establish a program of traineeships through grants to institutions to support short-term public health training courses. This would permit approximately 1,500 individuals to attend 2-week refresher courses conducted by training institutions having nationally recognized competence in the subject area.

We are also requesting an increase (from $1,173,000 to $1,900,000) in grants to schools of public health. There are constant and increasing demands upon these schools to provide highly trained personnel to engage in such rapidly expanding programs of national importance and interest as those related to chronic disease and aging, long-term illness, and medical care administration. Also urgently needed are increased numbers of scientists with specialized public health training in depth related to the control of environmental health hazards such as radioactive substances, and air and water pollution.

The increased appropriation requested would enable the schools to achieve more fully their role in the protection of the Nation's health by (1) increasing the quantity and improving the quality and scope of the instruction they provide; and (2) enlarging their ability to train the sharply increased number of workers which are required.

The amounts of grant funds allocated to each school is determined by a formula which takes into consideration the number of federally sponsored students attending each school.

OPERATING COST FOR TRAINING GRANT PROGRAMS

With the proposed expansion of our training grant programs, operating costs will likewise increase. We are requesting an additional $50,000 to help meet these costs. These funds will help to support the review and processing of applications for traineeships and training grants and the provision of consultation and technical assistance on public health training programs to schools receiving grants.

The Second National Conference on Public Health Training, by law, must be held sometime between June 30 and December 1, 1963. Preliminary staff work, including data collection and analysis, must be undertaken in preparation for this. For this purpose we are requesting an additional $50,000.

BOSTON REGIONAL OFFICE

Finally, the decision to reactivate the staff in the Boston regional office after inactivity for approximately 8 years, makes it necessary to increase staff whose responsibility is to provide consultative services to State authorities and assist them in developing and maintaining plans for Federal-State-local cooperative programs.

SUMMARY

In summation, to carry out the responsibilities of the new Division of Community Health Services we are requesting for direct operations an additional $844,600, involving 71 new positions. For public health training grants, we are requesting an addition of $2 million for traineeships and $727,000 for grants to schools of public health.

ESTABLISHMENT OF DIVISION

Dr. Stewart. Mr. Chairman and members of the committee, in 1960 the Study Group on the Mission and Organization of the Public Health Service recommended combining, within a single division, activities related to medical care and public health administration. To accomplish this the Division of Community Health Services was established in the Bureau of State Services in November 1961.

Today's health picture demands this amalgamation of staff equipped to pursue in harmonious combination the goals of public health and medical care administration. Assuming a good level of conventional health services, the major weapon we have for controlling chronic disease and influencing the health of the population is medical care. Thus, community medicine for the future requires health care facilities, services, and financing—all maintained in appropriate supply and balance and organized for efficient use, to bring the benefits of modern medical science to the individual at the right moment and in the right setting, avoiding waste and bringing professional satisfaction to the people engaged in providing the care.

MORE EFFECTIVE COMMUNITY HEALTH SERVICES

In order to promote more effective community health services, we are requesting additional funds to conduct studies, to provide information, and to strengthen our technical assistance in four areas: (1) Medical care and public health administration, including the organization, financing, and utilization of health services; (2) standards of health care; (3) school health programs; and (4) health services for agricultural migrants.

COMMUNITY ORGANIZATION

Fragmentation of responsibility has long characterized the provision of the wide array of community health services. These problems are especially acute in metropolitan areas. Major replanning and reorganizing must be undertaken to fill the critical gaps and eliminate the overlaps in personal health services. The present system of public health practice is just as obsolete in the face of the phenomena of metropolitan life as are present jurisdictional boundaries. Through cooperative studies in several communities, we plan to examine and evaluate new patterns now being tried and to stimulate other communities to redesign and adjust their programs and services to meet the changing health problems of the ever-enlarging community. Patterns of cooperation among public and voluntary health and welfare agencies, hospitals, and the medical profession will be studied in different types of community settings.

HEALTH ECONOMICS

The rising demand for health services, with limited resources for providing them, necessitates using these resources in the most economical manner. There is considerable public concern over the spiraling cost of health services, and public confusion regarding the numerous sources and systems of financing. The result is overdevelopment and use of some elements and underdevelopment of others.

We propose to augment our staff in health economics in order to develop within the Public Health Service a body of information on the financing and utilization of community health services. We are particularly interested in studying the impact on utilization and on family expenditures under different methods of insuring for medical care. Other questions for which more information is needed relate to the feasibility and premium cost of insuring nursing home care, home health services, mental illness, and drugs.

STANDARDS OF HEALTH CARE

A great number of governmental and private agencies have been engaged in the development of health care standards for the protection of users of health services and for the improvement of professional and technical services. Unfortunately, there has been little coordination, cooperation, and agreement among (1) agencies concerned with developing such standards, (2) users of the services, and (3) providers of the service. The Public Health Service has been concerned about this situation for some time, and recently the American Public Health Association has urged action. Therefore, in 1963 it is proposed to undertake the collection, study, evaluation, and dissemination of information on standards of health care. We will serve as a central clearinghouse capable of furnishing to interested agencies and organizations advisory services pertaining to the development of suitable standards of health care.

SCHOOL HEALTH ACTIVITIES

In the field of school health, information on problems and new developments in health and medicine are not being channeled effectively to the many school personnel who need and are requesting such information. Experience with three 3-day conferences has established that much can be accomplished by bringing college and university educators together with leading health science personnel to review current information and update the educators' knowledge, understanding, and appreciation for modern community health practice. Need for a comparable program is evident among the health leaders in State, city, county, and local school systems, and additional emphasis is proposed in 1963.

HEALTH SERVICES FOR AGRICULTURAL MIGRANTS

In the hearings on pending legislation (S. 1130) the needs for improving health conditions and services for agricultural migrants have been thoroughly documented. In order to begin to meet these needs we plan to expand along two fronts:

(1) Provision of consultation and technical assistance in the migrant health field through an expanded "intelligence" unit and focal point within the Public Health Service.

(2) Provision of direct assistance to areas of major migrant impact to improve the health services and health conditions of domestic agricultural migrant workers and their families. Here, emphasis would be placed on improving interagency and interstate planning and relationship in the provision of service.

For consultaton, a professional health team will be employed in the central office. A similar team will be employed in one of the migrant streams. It will place emphasis on pilot development and evaluation of interstate agreements and other methods for coordination of services between homebase and related work areas. Direct assistance will be provided by employment of personnel for temporary loan to key States and localities to facilitate continuity of service as the migrants move.

GRANTS TO STATES FOR GENERAL HEALTH SERVICES

The general health grant has two primary purposes. These purposes deriving from the words of the authorizing legislation "to establish and maintain adequate public health services" are as follows:

(1) To serve as the Federal share of financial support for basic core health organization and services through which most of the more specialized programs operate.

(2) To serve as a source of stimulation and support for new and improved programs and as the only source of Federal support for those programs which have no categorical grant funds.

We are proposing that the general health formula grant be maintained at the present level of $15 million.

GRANTS FOR PUBLIC HEALTH TRAINING

With the ever-increasing demands for new and more complex community health services, there is a continuing and intensified shortage of health manpower. The shortage constitutes one of the most pressing problems in public health administration today.

Because of the extreme need, we are requesting that the appropriation for public health traineeships be doubled (from $2 million to $4 million). The $2 million which has been appropriated for this purpose has supported approximately 625 traineeships each year. We propose, in 1963, to use $3,500,000 of the proposed appropriation to award approximately 1,100 traineeships to support graduate or specialized public health training, about 500 more than can be supported from appropriations at the current level of $2 million. This increased number of traineeships would permit more adequate emphasis to be placed on this important area of advanced public health training needs.

Also, through grants to institutions, $500,000 of the appropriation will be applied to establishing a program of traineeships to support short-term public health training courses. This would permit approximately 1,500 individuals to attend 2-week refresher courses conducted by training institutions having nationally recognized competence in the subject area.

We are also requesting an increase (from $1,173,000 to $1,900,000) in grants to schools of public health. There are constant and increasing demands upon these schools to provide highly trained personnel to engage in such rapidly expanding programs of national importance and interest as those related to chronic disease and aging, long-term illness, and medical care administration.

Finally, the Second National Conference on Public Health Training, by law, must be held sometime between June 30 and December 1, 1963. This, and the expansion of training grant programs, place heavy burdens on the Division's Public Health Training Branch. An additional $100,000 will be required to meet these needs.

In summation, we are requesting an additional $744,600 to carry out the important activities in the fields of medical care and public health administration, migrant health, and school health. For public health training, we are requesting an addition of $2 million for traineeships, $727,000 for grants to schools of public health and $100,000 for direct operations.

Mr. Chairman, I shall be glad to answer any questions you may have about this program and the budget request.

SUMMARY OF BUDGET

Mr. **Fogarty.** The appropriation for 1962 is $24,336,000 and the request for 1963 is $25,776,000. Taking into consideration the comparative transfers, which were explained earlier, the increase is about $3,500,000 and 71 positions.

RESERVE OF 1962 APPROPRIATIONS

Now, you have the usual reserve. This time it amounts to $202,000. What activity was cut?

Dr. STEWART. That was taken entirely from the $4 million grants to the "schools of public health."

Mr. FOGARTY. I thought they were having a tough job getting along as it was.

Mr. ACKERMAN. I might say, Mr. Chairman, that under the policy followed no grants were taken from "State health formula grants." However, the only increase in this appropriation was in the training grants. So in this sense, it was the only thing that was available for it.

Mr. FOGARTY. I see.

Do you think if you were allowed to use these funds it would result in substantial returns to the national interest?

Dr. STEWART. Well, certainly the schools would be able to expand and improve their programs.

Mr. FOGARTY. Would that not be in the national interest?

Dr. STEWART. The schools of public health are a national resource.

Mr. FOGARTY. They seem to think that they are serving the national interest. Do you disagree with them?

Dr. STEWART. No, I do not disagree at all. I think they are a national resource.

Mr. FOGARTY. Let me put the question to you again:

"Do you think, if you were allowed to use these funds, it would result in substantial returns to the national interest?"

Dr. STEWART. I think it would improve the schools of public health and they are a national resource.

Mr. FOGARTY. You do not think it would result in substantial returns to the national interest?

Dr. STEWART. I am having trouble with the word "substantial." I think it would increase the activities of the schools of public health if they had planned toward this. It would not interfere with their ongoing programs.

Mr. FOGARTY. But if they were able to increase their services, would that not result in substantial returns to the national interest?

Dr. STEWART. I think the returns are to the national interest. I wonder whether it is substantial.

Mr. FOGARTY. Well, you do not think it is substantial?

Dr. STEWART. No.

Mr. FOGARTY. The schools of public health think it is.

Dr. STEWART. Individual schools probably do.

Mr. FOGARTY. Well, do you disagree with that?

Dr. STEWART. No, I do not.

Mr. FOGARTY. You say you do not?

Dr. STEWART. No, I do not disagree with it.

Mr. FOGARTY. Do you agree with them that they are a part of this overall program and if they were allowed this money, that it would yield substantial returns to the national interest?

Dr. STEWART. There is no doubt in my mind that the schools of public health are a very important national resource. There are 12 schools. They have to produce the trained people for the public health of the country. They had some plans to expand based on this money. But it did not interfere with the program that they have going at the present time.

Mr. Fogarty. I am not talking about the present going program. I am talking about this $202,000.

I am going to ask them the same question when they come, so I hope you are not putting your foot in it by being in disagreement with what they are going to say. I have an idea what they are going to say.

Dr. Stewart. I do, too.

Mr. Fogarty. It will be pretty positive, I am sure. They will say that this $202,000 would produce substantial returns to the national interest. You do not agree with that?

Dr. Stewart. No, sir; I do not disagree.

TRAINING GRANT PROGRAM

Mr. Fogarty. Well, it looks like that is the best I can get out of you.

Now, your largest increase is $2,727,000 to expand the training grant program, and $50,000 for operating expenses, in connection with the increase.

Tell us what you plan to do with this increase.

Dr. Stewart. Well, I have it broken into three parts.

The $2 million is for traineeships; $1.5 million would increase the traineeships from the number we have been funding, 625 a year, to approximately 1,100 a year; $500,000 of the $2 million we propose to use for short-term training courses of 2 weeks duration in the schools of public health, which would permit about 1,500 individuals to be trained in this field.

The $727,000 for grants to the schools of public health would be the increase in the formula grants for the schools of public health. The $50,000 is for our own direct operations because of the increased activities which will come about from these increases.

There is also that $50,000 in our direct operations to get ready for the National Conference on Public Health Training, which must be held in 1963.

PLANNED USE OF TRAINEESHIP FUNDS

Mr. Fogarty. How is this $2 million expended? Is that given to schools or——

Dr. Stewart. It is given in two ways.

Mr. Fogarty. Who does the training?

Dr. Stewart. The schools do the training.

Mr. Fogarty. What schools?

Dr. Stewart. The schools of public health, the schools of nursing, the schools of engineering, who give public health training.

Mr. Fogarty. This is another case like we had this morning. This $202,000 reserve in 1962 appears in the area of your greatest need, apparently, in the area of training. And then that is your largest increase in 1963. It looks to me, Mr. Kelly, like an off-again-on-again approach, as I told Dr. Knott this morning. Were you here while Dr. Knott was testifying?

Dr. Stewart. I was here throughout about the last half.

NEED FOR ADDITIONAL TRAINEES

Mr. **Fogarty**. Can you give us some facts and figures indicating the need for training more people?

Dr. **Stewart**. Yes, sir; I can. They are based entirely on the data that was collected during the National Conference of Public Health Training that was held in 1958. At that time the survey revealed that there are some 20,000 individuals who are in the field of public health who have not had public health training.

The attempt here, to the policies that we have been carrying out, is to catch up some on the backlog and, in addition, to train those who were coming into the field for the first time.

Mr. **Fogarty**. What does this report say about this 20,000 backlog? What kind of a program does it recommend?

Dr. **Stewart**. Well, that report led to the program as it now exists.

Mr. **Fogarty**. Are you sure it did not expect a larger program than you have budgeted for 1963?

Dr. **Stewart**. The recommendations could be seen that way.

Mr. **Fogarty**. Let us get the recommendations and see what they are.

Dr. **Stewart**. All right.

Mr. **Fogarty**. Do you have them here?

Dr. **Stewart**. No, I do not have them with me. I will be glad to get them.

Mr. **Fogarty**. All right, let us see how it compares to your budget for this year.

Dr. **Stewart**. Yes, sir.

Mr. **Fogarty**. You are not spending what they thought you ought to be, are you?

Dr. **Stewart**. No, sir.

Mr. **Fogarty**. This report was made in 1958, it is perhaps outdated now 5 years later.

(The requested information concerning the report follows:)

Summary of the Report of the National Conference on Public Health Training, July 28–30, 1958

The conclusions of the conference in regard to the need for trained professional public health personnel included the following:

"The conference found that the data indicate a serious deficiency in the training of many currently employed personnel and document the areas of need for additional adequately qualified personnel to develop the specific health programs authorized by Congress and other public bodies. At the beginning of this year, for example, in official public health agencies alone, there were well over 2,500 vacancies in professional categories due to lack of trained personnel.

"In addition, because of this shortage of trained personnel, many positions have been filled during the past several years with inadequately trained people. As a result, over 20,000 professional workers now employed by governmental and voluntary health agencies do not have the formal specialized training they need to provide for the people the health protection made possible by today's technology.

"Title I has reversed a serious downward trend in the number of persons receiving public health training which began in 1947 and dropped more sharply in 1952. For the first time since 1951 the number of trainees in public health supported by State and local health authorities has increased. This increase has been stimulated and supplemented by title I. For the first time in many years we are gaining ground.

"Nevertheless, the number who have been trained is still too small. The backlog of known current need for training runs over 20,000. Sixteen years would be required to fill that gap with present programs, even if there were no personnel turnover, no increase in population, and no new needs for service."

The conferees made their basic recommendations for training in these areas: methods of administration, new areas for attention, the role of State governments, educational institutions, training methods in the Public Health Service, and evaluation and planning. The specific recommendations are listed below with statements of the status of each recommendation.

It is recommended that:

METHODS OF ADMINISTRATION

1. The training program initiated under title I be a continuing program with a periodic evaluation every 5 years.

Statement: The public health traineeship program has been continued. Current authorization will expire June 30, 1964. The following chart shows the amounts of appropriations received and the number of traineeships awarded each year:

Fiscal year	Amount appropriated	Number of awards
Total	$11,000,000	[1] 3,518
1957	1,000,000	363
1958	2,000,000	665
1959	2,000,000	654
1960	2,000,000	624
1961	2,000,000	607
1962	2,000,000	[1] 605

[1] Estimated.

Of the 3,500 individuals trained, about half were entirely new to the field of public health and half were already employed. Many of these personnel are filling key leadership and highly scientific positions. Collectively, they are making a significant contribution to public health. However, the conference estimated that more than 20,000 professional workers employed in public health agencies do not have the formal training they need to discharge fully their responsibilities and that 1,200 specialized trained professional workers are needed each year to meet demands for services due to population increase and new health hazards. In addition, it is conservatively estimated that the attrition loss from the 47,000 professional employees exceeds 600 annually.

The 1963 budget would permit more than 1,000 trainees to be supported in formal academic training and about 3,000 workers could receive at least 2 weeks of intensive short-term continuation education to help keep them abreast of new knowledge in their respective fields.

2. The present dual method of awarding stipends directly to individuals by the Public Health Service and through grants to the training institutions be continued and that earmarked grants-in-aid to States be added to this training program. (See recommendation 14.)

Statement: The first portion of this recommendation has been carried out. The second portion is discussed under recommendation No. 14.

3. The amount of funds for the traineeship program be increased over the present level and the proportion of funds to be utilized in grants to individuals directly, and through training institutions, be determined by the surgeon general with the assistance of an advisory committee.

Statement: The amounts appropriated for this program are shown under recommendation No. 1. The President's budget requests $4 million for 1963.

4. The Public Health Service continue to award its title I traineeship grants for the preparation of staff-level public health nurses through grants to institutions.

Statement: This recommendation has been followed.

5. There be an increase in the number of traineeships available for awards by the schools of public health.

Statement: The increase requested for 1963 would permit implementation of this recommendation.

6. In the direct awards by the Public Health Service and institutions continued high priority be given to students with little or no public health experience, with the recruitment and training of able young physicians given top priority. To be eligible for such traineeships individuals must have completed their basic professional training.

Statement: This recommendation has been followed since the beginning of the program.

7. More flexibility than has been provided for in the administration of title I be used with respect to the length of training, so that individuals who are being prepared to fill key leadership, highly specialized teaching, or other appropriate positions may be given traineeships for periods of more than 1 year.

Statement: The increase requested for 1963 would permit this to be implemented.

8. In some instances direct grants be made to qualified individuals who have been working in public health for an extended period of time.

Statement: This recommendation has been carried out.

9. An appropriation for administration of the program be included in new legislation for training.

Statement: The amounts appropriated for PHS administrative costs are as follows:

Fiscal year:	*Amounts*
1957	$45,000
1958	45,000
1959	45,000
1960	45,000
1961	125,400
1962	140,100

NEW AREAS OF ATTENTION

10. Training be provided to meet not only the needs of the official public health agencies, but also the needs of—

(*a*) Teaching institutions.

(*b*) Other agencies which conduct community health programs.

Statement: This recommendation has been followed to the degree possible from available funds.

11. The administrative funds (see recommendation 9) provide for financing programs for the recruitment of trainees and that these programs be well integrated with recruitment efforts of the National Health Council, National League for Nursing, and other agencies.

Statement: This recommendation has not been implemented.

12. Subject to appropriations there be a forward commitment to academic institutions of a certain number of traineeship awards for several years ahead, to permit necessary planning for faculty and facilities.

Statement: Since applicants select and apply through schools of their own choice, schools cannot be guaranteed a specified number of trainees each year. However, the number of traineeships allocated to each school of public health is constant. There has not been enough fluctuation in the number of trainees attending individual schools each year to produce any major administrative difficulties for them.

13. Funds be available for grants to academic institutions to support the basic activities of developing and administering continuation education programs in public health in full partnership with the operating health agencies of the several States and territories and the appropriate professional associations.

Statement: The mechanics of this program have been developed. However, the National Advisory Committee on Public Health Training recommended and the Public Health Service agreed that the need is so great for support of the basic year of graduate or specialized training which prepares professional personnel for public health careers, that support of short-term continuation education should be postponed until such time as appropriations were increased. The 1963 budget provides about $500,000 for this purpose.

ROLE OF STATE GOVERNMENTS

14. There be established an earmarked grants-in-aid program to the States for public health training and for recruitment of professional personnel.

15. Three million dollars of Federal funds per year be appropriated for such grants-in-aid to States.

16. Each State be required to match $2 of Federal funds with a minimum of $1 of State and local funds.

Statement: General health and the categorical disease grants may be used for the training of public health personnel and some State health agencies are now doing so. All of these have matching requirements.

EDUCATIONAL INSTITUTIONS

17. Basic support for the operation of schools of public health be provided on a continuing basis. This support should be in sufficient amount to insure meeting the current and expanding needs of the existing accredited schools and for the needs of such additional accredited schools as may be established. Such support should be by direct grants to schools according to a formula developed by the Surgeon General in consultation with the schools.

Statement: The conference recommended that Public Law 85–544 (sec. 314(c)(2), Public Health Service Act) be amended to remove the time limitation, the appropriation ceiling, and the provision requiring that, in apportioning the funds, primary consideration be given to certain categories (federally sponsored) students.

Subsequently Public Law 86–720, as enacted, removed the time limitation, and Public Law 87–395 increased the appropriation ceiling from $1 million to $2,500,000 annually, but restored the time limitation. Current authorization will expire June 30, 1966.

Appropriations under this legislation has been as follows:

Fiscal year:	
1959	$450, 000
1960	1, 000, 000
1961	1, 000, 000
1962	1, 375, 000
Less reserve	202, 000
Net available	1, 173, 000

18. The immediate needs for a $15 million appropriation representing 70 percent of construction costs for additional teaching facilities for schools of public health be recognized and be considered by the Congress. Such aid for construction should not be made an organic part of the legislation dealing with traineeships.

Statement: H.R. 4999 now pending in the Congress would, among other things, authorize the appropriation of funds for the construction of facilities in schools of public health.

19. Annual grants be made to schools of nursing accredited for the preparation of nurses for public health to support the needs of expanding teaching programs with a current goal of 60 percent increase in student enrollment.

Statement: This recommendation has been accomplished in part under the program of projects grants for graduate training in public health authorized by Public Law 86-720 (sec. 309, Public Health Service Act). See remarks under recommendation No. 21.

20. The need for funds for construction of teaching facilities for schools of nursing which prepare students for public health nursing be recognized and be considered by the Congress. The provision of such funds should be separate from legislation dealing with traineeships.

Statement: The entire problem of the national need for nurses and nursing education is under study by a committee appointed by the Surgeon General. The report of this committee is expected to made in the summer of 1962.

21. Teaching grants be made available to institutions other than schools of public health and schools of nursing to improve the graduate teaching programs for training of public health sanitarians, public health engineers, public health laboratory scientists, public health nutritionists, and others in the public health field.

Statement: Public Law 86–720 (sec. 309, Public Health Service Act) authorized project teaching grants to strengthen and expand public health training in schools of public health, nursing, and engineering. The appropriation for fiscal year 1961, the first year of operaitons, was $1,430,000. Project grants to schools of public health totaled $621,354; schools of nursing, $278,438; and schools of engineering, $529,643.

TRAINING METHODS IN THE PUBLIC HEALTH SERVICE

22. The Public Health Service, in lieu of establishing additional centers solely for training, make available direct training opportunities for staff of other agencies wherever and whenever it has a clinical, laboratory, or program operation suitable for a training program.

23. The Public Health Service expand its program assistance to States by making available teams of training specialists in places where needed training programs cannot be developed on a local or area basis because of the small size of agency staff, complexity of problem, or lack of facilities.

24. The Public Health Service seek authority and funds to make available personnel on loan to operating agencies and educational institutions to assist these agencies in maintaining services while their own personnel are in training and when no other solution is possible. It is appreciated the Public Health Service will need to seek additional funds in order to accomplish this objective.

25. In order to promote professional growth and development steps be taken to encourage freer exchange of personnel between the Public Health Service, educational institutions, and State and local health agencies.

26. The Public Health Service continue to assume the appropriate initiateive in the development of training programs to meet the needs of urgent and emergent public health problems.

27. The Public Health Service utilize all available professional and academic sources as well as inservice procedures for the training of its own personnel and that it seek additional funds to provide such training including career development, for its personnel.

28. Direct training opportunities of the Bureau of Medical Services be strengthened and expanded.

Statement: These recommendations (22 to 28) are taken into account by the Public Health Service in carrying out its training responsibilities and in associated Federal-State relationships.

EVALUATION AND PLANNING

29. There be held an evaluation conference at the close of each 5 years of the expanded program for the training of professional public health workers, and that adequate administrative funds are appropriated for this purpose.

Statement: A request of $50,000 for the collection of data and preparation for the National Conference on Public Health Training to be held in 1963 is included in the fiscal year 1963 budget requests.

30. Appropriation be sought to make available a limited number of project teaching grants to institutions providing basic professional training. The purpose of such grants should be to support research and experimentation in the development of improved methods of teaching public health in these institutions.

Statement: Funds have not been sought for this purpose.

31. Certain portions of the training funds be allocated for awarding traineeships, on a pilot study basis, for the last year of undergraduate academic training of public health sanitarians in schools which offer a recognized public health course that will qualify such personnel for first-level sanitarian positions in health departments.

Statement: The Public Health Service has not considered this recommendation to be feasible of implementation.

Mr. FOGARTY. How many of the applications for fellowships that you have received are you able to finance?

Dr. STEWART. Approximately half.

Mr. FOGARTY. About half?

HISTORY OF 1963 REQUEST FOR TRAINING

What did you ask the Department for in this area, and then what did the Department ask the Bureau of the Budget for?

Mr. ACKERMAN. $6 million was the request to the Department for public health training.

Dr. Stewart. $4 million to the Bureau of the Budget. And that is the figure that we have.

Mr. Fogarty. So the Department cut you $2 million?

Dr. Stewart. Yes, sir.

Mr. Fogarty. And this is the most important phase of your program, you say.

Did they give you any reason why they cut you $2 million?

Mr. Ackerman. No. This was just part of an overall markup. It contained many items. There was, of course, a 100-percent increase in the funds we are allowed.

Mr. Fogarty. Well, how does it compare with the recommendations made by this report back in 1958?

Mr. Ackerman. I am sure we are well below that report.

Mr. Fogarty. So if you start out with nothing and you get 10 traineeships, that is a 100-percent increase, is it not?

Mr. Kelly. That is infinity.

Mr. Fogarty. Or if you have 5 and you get 10.

Mr. Kelly. That is 100 percent.

Mr. Fogarty. That is what I meant to say.

So you are not doing very well in your program, Dr. Stewart. You have a long way to go. You cannot brag much about this budget.

Dr. Stewart. I think it doubled the traineeships.

Mr. Fogarty. It does not look very good to me.

MEDICAL CARE AND PUBLIC HEALTH ADMINISTRATION

Now, you have four other program increases which are set forth on page 105. Will you explain each and tell us why you think it is necessary.

Dr. Stewart. This is in the field of medical care and public health administration.

Mr. Fogarty. Migrant health.

Dr. Stewart. Migrant health, school health, and standards for health care.

In order to deliver medical care at the present time, it takes facilities, personnel, and financing. And there is an interrelationship between this which leads to an organization where you can get the care to people when they need it.

It is our intention in the medical care administration part of these increases to build a staff which will study and understand what is happening in an organization, see what experiments are going on and where we can give assistance in the organizational health services.

In the health economics area, we are building a staff of people to study what effects the various systems of financing are having on the organization delivering services, and the utilization of those services.

In the migrant labor program we are planning to build a core staff in the central office to assist States and localities in the migrant health problems. We are also proposing to develop a health staff in one of the migrant streams, particularly in working on the problems of interstate and interagency relationships, in finding and delivering health services for the migrants.

We also propose to assign a few people to key States which are involved in this health stream.

In the school health program, work is carried out through the activities of our Interdepartmental Committee on School Health.

The requests that we have been getting for assistance in developing health data or health information within the courses that are used to train teachers, who then train students in the health-education and the health aspects for school children, have exceeded our capacity to deliver. We hope to expand that staff some, working with teachers, educators, school officials, textbook companies, and others who are trying to update the information that is in all of these channels, to keep up with the advances of medical knowledge.

MEDICAL CARE ADMINISTRATION

The biggest increase that we are talking about, I think, is in the medical care administration area. This is a tremendous industry in the United States at the present time. With multiple forces of financing, with multiple ways of organizing, with a limit on the number of resources that any one place can command, with the expectations of people for medical care increasing, and with the demand for medical care increasing, the organization seems to be the key process. There are experiments going on in the country in this. You can label them experiments. Group practice is a good example. Here is an attempt to catch up with specialization in medical care trying to put it together.

GROUP PRACTICE

Mr. Fogarty. What do you mean by group practice?

Dr. Stewart. It is a grouping together of medical services into a group, mostly a group of specialists, with some general physicians too.

They may have a home-care program along with it. They may have other services, too. But the general pattern is a group of different kinds of specialists and physicians plus some generalists, who are providing care for a group of people. There usually is some system of pooling the income and distributing it.

Mr. Fogarty. What kind of a group, a union or a fraternal organization?

Dr. Stewart. No; this is a group of physicians. They may be sponsored by a group, too.

Mr. Fogarty. Yes, I see. Some of these are sponsored by a group, like unions; others are not sponsored by anybody.

Dr. Stewart. Yes. A group of physicians got together.

Mr. Fogarty. Sometimes you see where four or five doctors will get together in one building.

Dr. Stewart. Well, that is not what we are talking about.

Dr. Terry. That is commonly referred to as a "cluster" rather than a group practice in the true sense.

Dr. Stewart. We are talking about common records and some form of redistributing the income of the group.

Mr. Fogarty. I see.

Dr. Stewart. So the individual really looks to the group, rather than to a single physician.

The number of groups in the country studied 2 years ago was an identical study to one the Public Health Service did in 1956. Their number has tripled in the country. There are now over a thousand different groups and there are over 10,000 physicians involved in these groups.

These are groups that we identified by our definition.

There are other clusters of physicians that we did not count who were sharing an office or sharing a building or something like that.

The largest amount of growth has been in the Middle West part of the country.

Mr. FOGARTY. There has been quite a growth in California.

Dr. STEWART. That is right. Some in California. Not so much in the northeastern part of the United States. They range all the way from a small number of physicians to some that are quite large—30 or 40 or 50 physicians.

Mr. FOGARTY. We find that many of them are leaving the Northeast and going to the Midwest or to California.

Some have told me they go out and get in a building with five or six others and they can work an 8-hour day, whereas if they go in general practice by themselves, they are on call 24 hours a day.

Dr. STEWART. Part of this movement is due to this specialization of medicine. You cannot deliver good medical care without specialization.

Mr. FOGARTY. And also an 8-hour day.

Dr. STEWART. That is right.

Mr. LAIRD. We have one of these groups, Mr. Chairman, in my hometown, and they work far more than a 40-hour week.

Dr. TERRY. As a matter of fact, Mr. Laird, I do not know of very many physicians including the physicians in the Public Health Service, who only work 40 hours a week.

Dr. STEWART. I think, Mr. Laird, I am using this word a little loosely. What I meant was that it gives them an opportunity, since they are working together, for the man to have an occasional night off, a weekend off; and, more important than that, time out to go back and get some continuing education.

And it is through the groups that we find that this can happen most often.

Mr. LAIRD. The doctors have to keep up to date to give the best service.

Dr. STEWART. That is right.

Mr. FOGARTY. I think it is a good thing.

NATIONAL CONFERENCE ON PUBLIC HEALTH TRAINING

Now, under law, you are supposed to call this National Conference on Public Health Training.

Dr. STEWART. That is right. Between July 1 and December 1 of 1963.

Mr. FOGARTY. Oh, next year?

Dr. STEWART. That is right. The last half of the calendar year 1963.

Mr. FOGARTY. You have not set the date?

Dr. STEWART. No, we have not.

Mr. FOGARTY. Will these all be experts in this area that will be coming in?

Dr. STEWART. Yes, sir.

Mr. FOGARTY. And will you collect all the background information for them?

Dr. STEWART. Yes, sir.

We will begin to collect data, background data, for them, beginning this summer.

Mr. FOGARTY. I see.

CANCER TESTS

The New York Times of October 23, 1961, published an article, "Test for Cancer Unknown to Many":

> Forty percent of the women in the United States are still unaware of the simple laboratory test that could virtually eliminate deaths from uterine cancer, according to the American Cancer Society.

Would it be that high?

Dr. STEWART. I think it could, yes. But I do not know what the source of this statement is.

Mr. FOGARTY. It is the American Cancer Society's "1962 Cancer Facts and Figures," booklet:

> It's publication yesterday was timed for the opening today at the Biltmore Hotel of the society's 48th annual meeting.

Mr. LAIRD. I would think women going for a regular checkup would certainly be given the simple test for cancer.

Dr. STEWART. Well, yes; I would hope in most instances she would.

Mr. LAIRD. What percentage of the women in this country have a medical examination, say, every 2 or 3 years?

Dr. STEWART. I do not know.

Mr. LAIRD. You do not have those figures?

Dr. STEWART. No. The only data we have nationwide, is through the national health survey data, to which I can tell you how many women saw the doctor one or more times in a year, but whether they saw him for this particular purpose or not, or for what purpose it was, we do not know.

We do know that this survey tries to divide visits for illness and visits for health maintenance, prevention, immunization.

About 10 percent are for health examinations.

Mr. FOGARTY. I think in areas where they have had these demonstration projects like they had in my State for years, they have had real good cooperation with the local doctors.

The General Federation of Women's Clubs has taken this on as a project this past year, and they have been working to publicize the fact that these tests should be made.

We thought you might be able to do more in this area with your local public health people, because you are charged now with responsibility for working with the State and local public health people. Maybe they could publicize this more than they have been doing.

Dr. STEWART. I think the cancer control program is doing a great deal and is working with local health departments and putting on these demonstrations and disseminating information.

Mr. FOGARTY. Do you think that some of the work you are doing now will help in the line of communication between research and the application of research results.

Dr. STEWART. We hope that the work we are doing will help in making it possible for people to find what they are looking for in a community and that when they find it, there is some way of financing it so it can come about.

One of the problems that we are particularly interested in is what Dr. Knott was speaking to you about. And this is in the nursing home field. Our interest in this is that at the present moment, there are very few experiments in the coverage of nursing homes insurance under nursing. We would like to cover the experience of these experiments, particularly the one in Michigan, and see first whether it is insurable or not, and, second, see what the cost experience is on it.

Because nursing homes, even though we talk about raising the standards and have ways of doing this, unless somebody can pay the price which goes along with the requirement of higher standards, you are up against it.

Mr. FOGARTY. What can you do about raising the standards of the nursing homes?

Dr. STEWART. I think that we can begin to try to find ways of measuring the effect of certain standards. I am particularly interested in patient care standards, not fire standards or this kind of thing; does a certain thing that creeps into standards actually do what it is supposed to? Does it have an effect on standards; what measurement do you use for standards?

Mr. FOGARTY. Give us an example of one of these standards you are speaking of.

Dr. STEWART. One of the standards being used in Minneapolis for example is a bedsore rate. They actually keep a rate of the number of bedsores in the nursing homes. And then they institute staff training programs to teach measures for reducing the rate. Rates are maintained to measure staff performance improvement in the prevention of bedsores.

Mr. FOGARTY. The Office of Vocational Rehabilitation is doing something in this area, I believe.

Dr. STEWART. That is right, in the line of training and rehabilitation.

Mr. FOGARTY. They mentioned this bed-sore problem.

Dr. STEWART. Yes; this I am using as an index of quality care.

There is another one that could be used, although we are not sure whether it is good enough. The number of catheters you have to use, the number of incompetent people in nursing homes. This might be used as an index. The number that you can keep ambulatory.

Mr. FOGARTY. Then if you establish an index, what happens? What is the next step then?

Dr. STEWART. Then the next step is to point out that this index can be applied by the licensing agencies in the State.

Mr. FOGARTY. So you really pass this back to the States?

Dr. STEWART. And work with them on this.

Mr. FOGARTY. Actually, it is the State that has control over licensing them?

Dr. STEWART. That is right, and in most instances it is the State health department.

Mr. FOGARTY. Some of them are pretty poor.

Mr. Denton.

HEALTH OF MIGRATORY WORKERS

Mr. DENTON. I am glad that you are doing something about health for the migratory workers, but where do you expect to get the doctors and the hospital facilities for them?

Dr. STEWART. Well, this, of course, is one of the real problems in supporting the health for migrant laborers, because where they need their health services is in the area where you have the least number of physicians and amount of hospital services.

We are hoping that we can devise some kind of system which will take care of their health needs on the spot and then try to get them to the doctors and hospitals.

Mr. DENTON. Will you have public-health doctors treat them, or will they go to the community doctors?

Dr. STEWART. No; this will be using the community resources.

Mr. DENTON. Will you get some kind of a program with the community doctors to take care of them, some drive to get it done?

Dr. STEWART. The attempt is to try to get this. The present legislation that is before the Congress proposes project grants to develop this type of program in concentrations of migrant workers in the country.

Mr. DENTON. Grants to whom?

Dr. STEWART. It would be to a project, a local community, a State, this type of thing.

Mr. DENTON. Would that be grants that would pay the doctor?

Dr. STEWART. They could use it for purchasing or developing their own services; yes.

Mr. DENTON. What would you do if you got migratory workers who went to a community where there were no doctors?

Dr. STEWART. There is a possibility of developing mobile units to move into these communities when the migrants are there. They may be only in that particular area for 6 weeks or a 2-month period. Developing a mobile unit that takes care of them is better than nothing.

Mr. DENTON. Would you have doctors there that were given a grant?

Dr. STEWART. It could be that the doctors are paid out of the project grant that has been given to whoever is sponsoring the mobile group in the local community or State.

COMMUNITIES LACKING MEDICAL PRACTIONERS AND FACILITIES

Mr. DENTON. Along that same line, have you done anything about communities that do not have doctors or do not have dentists, or do not have any medical service center?

Dr. STEWART. Well, we are hopeful that the present legislation that is before the Congress will pass, which will increase the number of physicians. We have a shortage of physicians in the country. And this, of course, is a basic problem.

Mr. DENTON. Well, I know a county that only has one doctor and no dentist. There must be a great many in the country like that.

Dr. STEWART. Yes.

Mr. FOGARTY. We have an island off the coast of Rhode Island that cannot get a doctor. What do you do about that?

Dr. **Stewart.** There are just so many doctors to go around, and there is no way of forcing doctors to go anywhere. There are ways of enticing them, which has been partially successful.

The Sears, Roebuck Foundation, for example, loans money to rural communities to build facilities for the doctors.

Mr. **Denton.** That is just a diagnostic center, though.

Dr. **Stewart.** Well, it is his office-clinic building; yes.

Mr. **Fogarty.** I live in a small town, and we did that. I was one of several local people who signed the note to build a home for this doctor, and it worked out pretty well. The place is all paid for, and the doctor is doing a real good business and is a good doctor. That was one way we were able to get one.

But in this other case it is a half-hour ride from the mainland, and it is not a very attractive place in the wintertime.

Dr. **Stewart.** The problem of the supply of physicians and dentists in rural areas is more than just the supply. This, of course, is a basic problem.

But the other one is that the impact of specialization and a reluctance of the physician to go anywhere where he will not have other professionals on whom to call.

Mr. **Denton.** That is right. A doctor can go to a larger city. He will have more patients. And then he will have hospitals and better facilities and tools to work with.

Dr. **Stewart.** That is right.

It is possible that the answer may lie in the practice for rural areas.

Mr. **Denton.** Of course, I wish you would make some study of that problem, because I think it is a serious problem.

Dr. **Stewart.** This we hope to do.

COST OF HOSPITAL CARE

Mr. **Denton.** Now, another question: You spoke about the cost of hospital care.

Dr. **Stewart.** That is right.

Mr. **Denton.** You are investigating that; is that right?

Dr. **Stewart.** We are investigating the costs of medical care, of which the hospital cost, of course,is a major part.

Mr. **Denton.** I hear that many people say hospital care is too high. Then I hear hospital people say that, if you figured the cost in a hotel and had to buy your meals and all the treatment in a hosiptal then the hospital care is low and a very few of them can operate on what money they are paid by patients.

Now, what is the picture about that?

Dr. **Stewart.** Well, I do not know what the answer is to whether it should be higher or not, or it should be lower. The fact that it is going up at the rate of 6 to 8 percent a year is well established. And the hospital administrators claim that for all they can see, it is going to continue to go up at 6 or 8 percent a year in the future.

Seventy percent of hospital costs are wages, for people who work in hospitals. The rest of it is distributed among other things. But the two major things which have increased hospital costs are the increasing rise in wages of people who work in the hospital and, second, the complexity of hospitals getting greater and greater and having to hire more and more technical people.

The thing that we cannot do, though, is to assure people that we are organized in the most efficient way, that they are actually getting the most for their dollar that they could get. In some areas the per diem rate has reached almost $50 a day. In other areas it is around $30. The average for the country is now about $37.

EFFECT OF INSURANCE ON HOSPITAL COSTS

Mr. DENTON. Well, now, they say people go to hospitals, since they have insurance, where they did not go before. Has that affected the question?

Dr. STEWART. Yes, it has. Particularly because, first, people who have insurance may go to the hospital earlier, and in this sense it may be good medicine.

On the other hand, so many of the insurers do not cover any of the services outside the hospital.

Mr. DENTON. Yes.

Dr. STEWART. So if they are going to get a diagnostic workup, there is some pressure on the doctor to put them in the hospital, because it is covered by the insurance, and we get such statements as: "Well, I paid for it, why should I not get it."

Mr. DENTON. I just had a case where a man had sinus trouble and headaches. Well, he went to the hospital for a checkup. In the old days they would not have done that. He was there about a week. I do not know, but I imagine his insurance took care of it.

Dr. STEWART. Well, there is a response to this from the medical profession. They are establishing what they call hospital utilization committees. A group of the staff get together, go over their charts, and they say: "This five should not have been admitted, because it could have been done just as well outside the hospital without requiring the special facilities of a hospital." And they bring this to the attention of the medical staff, and there is some type of pressure put on these individuals to stop this.

PRESSURE OF INSURANCE ON DOCTORS

On the other hand, the doctor is a bit on the spot if a person has paid for health insurance which covers hospital care but not outside the hospital. It is a little bit hard to withstand the entire pressures of your patients.

The other end of the problem in hospital care I think is even more important, and that is a person who is there and has no other place to go and becomes a long-term stayer in the hospital—the one that ought to be in the nursing home or cared for in the home. Here, I do not think utilization committees can do much good, because they are in the four walls of the hospitals, until they extend themselves out into the community.

And that brings you up to the point where you really cannot tackle the costs of the hospital and utilization of hospitals unless you know of the needs in your community.

EXTENT OF HEALTH INSURANCE COVERAGE

Mr. DENTON. In your studies, did you determine the percentage of people that have health insurance?

Dr. STEWART. About 80 percent of all people in the country have some form of health insurance at the present time.

Mr. DENTON. I think that is all.

Mr. FOGARTY. Mr. Laird.

COST STUDIES

Mr. LAIRD. Doctor. what are you doing with this information that you are gaining from, say, the Michigan study which you referred to? Are you going to go in there and analyze cost figures, and so forth?

Dr. STEWART. The coverage of nursing homes that I mentioned?

Mr. LAIRD. Yes.

Dr. STEWART. We would hope to either analyze or to get the Michigan Blue Cross to analyze it in such a way that it can be used by all.

Mr. LAIRD. Well, are there not insurance carriers in there now analyzing those costs?

Dr. STEWART. This is the Blue Cross of Michigan that I have reference to. I do not know about other insurance carriers covering nursing homes in Michigan.

Mr. LAIRD. But I understand insurance carriers are looking into this.

Dr. STEWART. Yes, they are.

Mr. LAIRD. Do they not take a project like that and analyze it and see what rates should be, and so forth?

Dr. STEWART. Yes, they do.

Mr. LAIRD. Do you do the same thing?

Dr. STEWART. We try to collect from the various experiences, look into it, and see if there are differences, and the experiences can be explained by the differences, because this company is in this area and this one is in this, and so forth.

Mr. LAIRD. You just try to pull all the information together?

Dr. STEWART. Yes, that is right. We may have a form of analysis, some more data that we see is useful for the Nation, but which they do not particularly see, which is pertinent to their own decisions that they have to make within their own program.

Mr. LAIRD. I think the Public Health Service has been weak in this whole area of medical economics for a long period of time. I am interested in the progress that you are making in this area.

HOSPITALIZATION REQUIREMENT IN HEALTH INSURANCE POLICIES

What are you going to do about the present provisions in health insurance policies as regards the covering of costs only for hospitalization?

Dr. STEWART. Well, as you know, Mr. Laird, at the present time health insurance pays about 25 percent of the private expenditures for medical care. And what has caused some alarm is that it has leveled off at this 25 percent over the last few years.

The answer lies in what can they expand into now to cover more of the medical care costs in their policies. One of these is this experimentation in nursing homes.

The one that we have been particularly interested in is in the area of drugs. And we are, at the present time, doing two small studies in the utilization of drugs under prepaid programs, one here in Washington, D.C., and one in Windsor, Ontario.

Actually, there is not too much to study, because there are not very many prepaid programs which now cover drugs. That is, outside the hospital.

Mr. LAIRD. What about this complaint, though, that you referred to a few minutes ago, which I hear often—the pressure that is on the doctor to put the patient in the hospital? Now, it would seem to me that the insurance companies could save a great deal of money, which would result in lower rates to individual insurance policyholders, if this incentive was not there to put them in the hospital to get costs covered.

Many doctors raise that point when we have visits with them about this. Why is there resistance to broader coverage? Do they not trust the doctor to make the proper certification, or what is the problem?

Dr. STEWART. It is very difficult. The doctor is the only one who can admit to the hospital, so when he is dealing with a patient he has known for some time and they have got financial problems and this can be financed under their hospital insurance, he is going to have difficulty resisting this pressure. Even in his own mind, he can say it could have been done easier.

Mr. LAIRD. Why isn't the policy changed? What is the reason?

Dr. STEWART. The problem in the insurance, as I understand it, is the difficulty of controlling costs, for following costs, so that you can figure what it will be outside of the hospital.

The insurers, particularly those that pay service benefits—Blue Cross—have had a working relationship with hospitals and the services in hospitals, and worked out a reimbursable formula and this sort of thing.

When you move out into diagnostic services and private laboratories or private X-rays in offices, or the outpatient department of some hospitals, the problem of having some idea what this costs will come out, except under experience, to be unknown. And so they are cautiously moving into this field.

Mr. KELLY. They have made some progress though, have they not, Dr. Stewart?

Dr. STEWART. Oh, yes.

Mr. KELLY. They are attempting to cover such things as small surgery in the doctor's office. They have covered such things as office X-rays for broken bones and so forth.

They always change it after I have an incident that is not covered.

Mr. DENTON. I looked at my policy and tried to find that in it.

Mr. KELLY. A broken bone or a foot can be covered as surgery in a doctor's office now.

Dr. STEWART. They are beginning to move into this; yes.

KERR-MILLS PROGRAM

Mr. LAIRD. What are you doing about watching the progress of the program under the Kerr-Mills Act?

Dr. STEWART. We receive reports from the Bureau of Family Services as to which States have initiated the program.

Mr. LAIRD. Have you studied any of the programs in any of the States thus far?

Dr. STEWART. No. There are two that we are following rather closely and this is only because in this instance they happen to be contracted with the health department and it was a way for use to study it. One is in Kentucky and the other is in Alabama, where the health department is serving as an agent of the welfare department to carry out the Kerr-Mills action.

Now, in Alabama—I am sorry; I am mixed up. Alabama is the Old-Age and Medical Assistance Act. The Kerr-Mills Act is not initiated. As soon as it is, it will be carried out by the health department.

The only other is the interest in following what has been happening. We have had a series of regional conferences on medical care around the country. We just completed our second one 2 weeks ago in California in which we have got together public health people, welfare, medical society in some instances, Blue Cross, Blue Shield, anybody who could get together. And in this we discussed some of the problems of Kerr-Mills and the——

Mr. LAIRD. It seems to me that the Kerr-Mills program would have been much more successful if Secretary Flemming had placed it under the Public Health Service, rather than under the Social Security Administration. Some of the States are following that policy now and putting it under their State department of public health, are they not?

Dr. STEWART. Yes. Some have contracted to the health department. They have to contract, because, as you know, it is an amendment to title I, and the original title states "single State agency." The whole welfare program is one and that is an amendment to it.

But they can contract with the health department to carry out those medical aspects, and there are some very knotty decisions with a limited amount of funds in both the State and Federal contribution, and local, too—the Kerr-Mills Act.

Their decision is to determine what will be the best to purchase for recipients, the best in terms of medical care, within the limited number of dollars.

There are some other interesting experiments. Texas has just recently contracted with the Blue Cross in Texas to pay the premium for this group of individuals. Now, they have no experience, but it will be interesting to watch and see what happens under this.

HEALTH INSURANCE FOR OLDER PEOPLE

Mr. LAIRD. Do you study these policies that are being expanded quite rapidly in the coverage of older persons?

Dr. STEWART. Yes, we try to keep track of them as to what they do and how they are changing. We keep an inventory of these over-65 policies.

Mr. LAIRD. Is there an increase in the number of people participating in these.

Dr. STEWART. There is an increase of people over 65 who have some health insurance, the national health survey found. What the number is, I do not know. We do not have that statement. We do not know how many policies of the different kinds are actually sold. I would think they keep this to themselves.

Mr. LAIRD. I would not think they would.

Dr. STEWART. What one particular company has sold, I think they will total and tell you how many people are covered in this thing.

Mr. LAIRD. I should think that would be valuable information for you to get.

Dr. STEWART. We can get the total health coverage of the insurance industry through the Health Insurance Council. They publish a booklet every year called "A Fact Book on Health Insurance," which gives all the coverage and the amount of dollars paid in and how many dollars paid out, and a very complete data.

REASONABLE COST OF HEALTH INSURANCE

Mr. LAIRD. Many of these policies seem rather reasonable, as far as the cost is concerned.

Dr. STEWART. Yes, but you would have a relate that to the benefits provided.

Mr. LAIRD. Well, I am relating it to the benefits under the bill that is before the House Ways and Means Committee at the present time.

That bill has a big deductible item in it, and many people do not realize how big the deductible item is in that bill compared to, say, Continentals' program, or some of these other programs, of, say, Mutual of Omaha. I have had some experience with these. My mother has taken a policy, and quite recently she has had to use it. There was no deductible in her policy at all.

Mr. DENTON. Will you yield, off the record?

Mr. LAIRD. Sure.

(Discussion off the record.)

Mr. LAIRD. Back on the record.

Dr. STEWART. It is knowledge and information of this type that we feel the Public Health Service should have.

Mr. LAIRD. I think you are the people that should have it.

Dr. STEWART. Yes, sir.

Mr. LAIRD. I do not think the people in the Social Security Administration are as capable of handling this medical information as the Public Health Service. And yet they are spending much more money in this area of medical economics, in a field in which they are not as qualified as you are.

That is all.

AVAILABILITY OF COST INFORMATION FOR INDIVIDUAL HOSPITALS

Mr. FOGARTY. Dr. Stewart, what about the private nonprofit hospital? What about their administrative expenses? Are their books open to anybody who wants to see them?

Dr. STEWART. You mean internal administrative expenses?

Mr. FOGARTY. Yes.

Dr. STEWART. Yes, almost all of them are subject to audit from Blue Cross, at least.

Almost all of them now are Blue Cross.

Mr. FOGARTY. How about a drive for funds to add to a hospital? Can the general public that is asked to contribute to a drive find out just how much it is costing to operate the hospital?

Dr. STEWART. Well, some of the hospitals publish an annual report which contains this information. New York Hospital, for example, in New York City, does. Others do not publish any report.

HOSPITAL COST DETERMINATION

If you want to find out what specific items cost in hospitals, you may have some difficulty.

Mr. FOGARTY. Well, I have heard it said a little more strongly than that.

Dr. STEWART. This is particularly true in areas which may be called central service type areas such as laboratory, outpatient, this type of thing.

When it comes to the cost of maintaining a bed as far as bed and board goes, they can give you this type of figure, or what it costs to run nursing schools.

Mr. FOGARTY. One hospital may charge so much for the use of its operating room; a hospital six blocks away may have the very same equipment and space and everything else, and charge $5 or $10 more than the first hospital.

Dr. STEWART. I think it is fairly well known that there is not too much relationship between charges and costs in hospitals, although there is a conscious attempt on the part of the American Hospital Association in hospitals to relate the costs and charges. They are moving in that direction.

Mr. KELLY. It has really only been in the last few years that the accounting systems in hospitals have even been conscious of cost centers like laboratories and drugs. They have been billing arrangements designed to obtain the necessary funds.

If you go back a few years, most of the bills were an average bill without specific billing for the use of the operating room and so forth.

Mr. FOGARTY. I know insurance companies have been looking into these costs recently. I know in recent years they have been comparing the costs in one hospital to another for the same service.

Mr. KELLY. Here in the Washington area we get involved in connection with Freedman's Hospital. The Blue Cross people actually have a specific list of charges beyond which they will not reimburse you. And this tends to dictate the charges of all the hospitals in the area.

Dr. STEWART. This has been one way that the Blue Cross has handled this—is that they put a ceiling on the charge. They allowed certain flexibilities in charges, but they put a ceiling on them.

Mr. FOGARTY. Is there anything else you would like to say?

Dr. STEWART. No, sir. Thank you very much.

Mr. FOGARTY. I think you have done a very good job under the limited budget you have been given to operate with. I think you could do a lot more that would bring returns to the national interest, if you were allowed a few more dollars.

Do you not, too?

All right; thank you very much.

Dr. STEWART. Thank you.

CONTROL OF TUBERCULOSIS

February 5, 1962.

WITNESSES

DR. EDWARD T. BLOMQUIST, CHIEF, TUBERCULOSIS BRANCH, COMMUNICABLE DISEASE CENTER
DR. LUTHER L. TERRY, SURGEON GENERAL
JAMES F. KELLY, DEPARTMENT BUDGET OFFICER

Object classification

[In thousands of dollars]

	1961 actual	1962 estimate	1963 estimate
11 Personnel compensation:			
Permanent positions	1,196	1,249	1,165
Positions other than permanent	112	70	70
Other personnel compensation	21	19	19
Total personnel compensation	1,329	1,339	1,255
12 Personnel benefits	135	127	120
21 Travel and transportation of persons	146	130	128
22 Transportation of things	22	21	19
23 Rent, communications, and utilities	38	37	27
24 Printing and reproduction	10	12	12
25 Other services	104	247	350
Research contracts	446	342	224
Payment to "Bureau of State Services management fund"	109	120	275
26 Supplies and materials	92	87	66
31 Equipment	46	31	17
41 Grants, subsidies, and contributions	3,982	4,000	4,000
Total obligations	6,459	6,493	6,493

Personnel summary

	1961 actual	1962 estimate	1963 estimate
Total number of permanent positions	205	215	201
Full-time equivalent of other positions	13	8	8
Average number of all employees	204	206	192
Number of employees at end of year	203	253	239
Average GS grade	6.2	6.4	6.4
Average GS salary	$5,775	$5,944	$5,905

Program and financing

[In thousands of dollars]

	1961 actual	1962 estimate	1963 estimate
Program by activities:			
1. Grants:			
(a) To States	3,982	3,500	2,500
(b) Project		500	1,500
2. Research, training, and technical services	2,486	2,496	2,493
Total program costs [1]	6,468	6,496	6,493
Change in selected resources [2]	−9	−3	
Total obligations	6,459	6,493	6,493
Financing: Unobligated balance lapsing	34		
New obligational authority (appropriation)	6,493	6,493	6,493

[1] Includes capital outlay as follows: 1961, $67,000; 1962, $35,000; 1963, $35,000.

[2] Selected resources as of June 30 are as follows: Unpaid undelivered orders, 1960, $71,000; 1961, $62,000; 1962, $59,000; 1963, $59,000.

Mr. FOGARTY. Dr. Blomquist, are you ready?

Dr. BLOMQUIST. Yes, sir.

GENERAL STATEMENT

Mr. FOGARTY. Go right ahead, Doctor.

Dr. BLOMQUIST. Thank you.

EXTENT OF TUBERCULOSIS PROBLEM

Mr. Chairman and members of the committee, between 1959 and 1960 the rate of newly reported cases of tuberculosis declined by 5 percent. We do not take comfort in this reduction, however, because it is only one-half the rate of decline which the Arden House Conference of TB experts had recommended as a goal. Actually the rate of decline is significantly lower than the average annual decline for the last 7 years of 8 percent. The slowing down between 1959 and 1960, while it probably does not foreshadow an increase in case rates, does indicate a need for more careful use of our resources and more effective direction of efforts. Otherwise, tuberculosis will level off, continuing to be a financial load on communities and a personal catastrophe to thousands of patients and their families.

GRANTS

Obviously, there are basic problems which must be solved if a large scale intensive campaign to eradicate tuberculosis as a major public health problem, as contemplated by the Arden House Conference, is to be accomplished. High among these problems are the uneven distribution of the tuberculosis problem with high incidence spots persisting in areas well under control; the problem of out-of-hospital services for tuberculosis patients still on drug therapy and the urgent need to follow up on contacts of known cases. High quality in these activities is essential to tuberculosis control. If they are inadequate, there is bound to be failure all along the line. Patients' treatment is interrupted so that they not only do not recover fully but may become chronic cases with resistant tubercle bacilli. The members of their families, who, according to the results of our prophylaxis trials, stand a dramatically higher than average chance of themselves having active disease, may have treatment postponed, or fail to get the benefit of prophylaxis. Casefinding effort is wasted, if suspects do not receive diagnostic services. Until better success is attained in solving these problems no massive reduction campaign against tuberculosis seems possible. A major objective of the Public Health Service tuberculosis control program is to help bring this about.

Thus, it is to raise the standards of these service in areas with large tuberculosis problems that the funds appropriated for project grants in the current fiscal year are being used. In one northeastern city, a grant is providing the addition of nine public health nurses to the staff, and for other help in a concerted effort to bring patients under continuing treatment and get contacts and suspects examined. Inservice training will also be used to raise the quality of service. In a southern community, a project grant will pay for physicians, nurses, and other staff services and for drugs and X-rays, so that the number of weekly tuberculosis clinic sessions can be doubled. A very large northern community, where the problem of patients lost between hospital and clinic has been pressing, is using project grant money to expand its clinics related to hospitals, and its services to provide continuity in diagnosis, medical care, and public health supervision.

In all of the project communities, the tuberculosis program staff gives continuing help, not only when projects are planned, but in frequent subsequent visits to lend a hand in a variety of ways. The staff is finding State and local tuberculosis workers eager to use help, and newly confident about bettering their programs.

1963 REQUEST

So effective is the project grant device proving to be that we are asking this year to have another $1 million of funds for grants to the States diverted to this purpose. This will allow continued progress in present project communities and doubling the number of communities to receive this intensive assistance. At the same time, formula grants totaling $2,500,000 distributed among all the States will help them to keep basic control activities going in areas where the problems, although less acute, still require special public health attention.

RESEARCH, TRAINING, AND TECHNICAL SERVICES

During the past year, the first preliminary findings of the large scale community and institutional trials of isoniazid as a prophylactic treatment to prevent active tuberculosis were announced. These first results were based upon observations of more than 50,000 people during the year; they were taking pills. Half of them took daily doses of isoniazid and the other half took placebo.

The first results indicate that isoniazid administered in this way is effective in preventing tuberculosis during the time it is being taken. Among household contacts of tuberculoss patients, for instance, isoniazid reduced the incidence of tuberculosis by about 80 percent. The drug was shown to be well tolerated by most people who took it; medication was discontinued because of presumptive side effects in about the same number of people taking placebo as taking the drug isoniazid. We also found evidence that a high proportion of people could be persuaded to take pills every day for a year.

While all of these findings of the study are encouraging, the critical question as to whether isoniazid taken for a year provides continuing protection in subsequent years must wait for answer until enough years have elapsed after the pill taking to provide valid information. In the meantime, health departments are being encouraged, when they have adequate staff, to add prophylactic treatment of contacts of active cases to their regular contact services. It seems important to emphasize that this must be in addition to, not a substitute for, essential control activities. While the prophylactic use of isoniazid has a good potential to help reduce the tuberculosis case rate, it cannot do so unless patients with active disease are found and treated and their contacts identified and examined.

In the coming year, our studies to determine whether isoniazid provides lasting protection will continue. We will also go forward with a study now begun to investigate the usefulness of prophylactic doses of isoniazid in preventing the recurrence of active disease in persons with inactive tuberculosis.

1962 APPROPRIATION COMPARED WITH 1963 REQUEST

Mr. Chairman, I shall be glad to answer any questions you may have about this program and the budget request.

Mr. Fogarty. The appropriation for 1962 is $6,493,000 and the request for 1963 is for the same amount.

What happened here? You did not get a reserve for savings imposed on you.

Mr. Ackerman. There was no increase in this program, Mr. Chairman.

Mr. Fogarty. I see.

Is that the only reason?

Mr. Ackerman. Yes, sir.

EMPHASIS SHIFT IN THE GRANTS PROGRAM

Mr. Fogarty. Now, why are you shifting the emphasis in both the grants program and in direct operation? You mentioned it briefly in your opening statement.

Mr. Blomquist. We are shifting our grant program from the formula grant to the special project grant because of the nature of the problem. Here, we have in this country a very spotty distribution of tuberculosis. It is not, as many diseases, rather common everywhere. But it has retreated to strongholds. And these are the places that are contributing to the national problem.

Mr. Fogarty. Is this a more effective way to fight it, in your opinion?

Dr. Blomquist. Yes. It certainly is, in my opinion, and in the opinion of our advisers; they all agree that this is a good way.

EXTENT OF TUBERCULOSIS

Mr. FOGARTY. Now, the death rate from tuberculosis has gone down rather dramatically from what it was 10 or 12 years ago because of improved treatment methods, but there are still a great many people who are infected each year, are there not?

Dr. BLOMQUIST. Yes, there are.

Mr. FOGARTY. Would you say that went down 5 percent; is that what your opening statement said?

Dr. BLOMQUIST. Yes.

Mr. FOGARTY. How many cases do you estimate there are each year?

Dr. BLOMQUIST. In 1960, there were 55,500 cases reported. These are the new, active cases. This is the annual incidence.

COST OF TUBERCULOSIS CARE

Mr. FOGARTY. How much do you estimate that just care and treatment of tuberculosis costs each year?

Dr. BLOMQUIST. The analysis we made indicates that the costs that we can attribute to tuberculosis control directly in this country are about $750 million.

Mr. FOGARTY. Will you give us a breakdown of that?

Dr. BLOMQUIST. I would be glad to.

(The requested information follows:)

BREAKDOWN OF COSTS ATTRIBUTABLE TO TUBERCULOSIS CONTROL

According to careful, informed estimates, the direct expenditures for tuberculosis in the United States are about $750 million. This figure does not include loss of income due to disability.

Of the $750 million total, about 60 percent goes for hopsitalization and rehabilitation. Although the number of tuberculosis hospital beds occupied has declined considerably in recent years, the cost per patient day has risen, and the total expenditure for hospitalization remains high.

The second largest part of the total, about 30 percent, is spent for compensation. Control activities, which include casefinding, diagnostic services, services to patients outside the hospital and to the contacts of active cases, and education, account for about 8 percent of the total.

The remaining 2 percent of the money goes for research, construction, and other expenses.

Mr. FOGARTY. What about lost time from work?

Dr. BLOMQUIST. This is a very difficult thing to reduce to dollars. This estimate that I gave you does not include that.

Mr. FOGARTY. It is not difficult for some people. I have seen many estimates for other diseases.

ARDEN HOUSE CONFERENCE

This appropriation is not going to go very far toward carrying out the recommendations of the Arden House Conference, is it? That was in 1959, was it not? I though that conference recommended a program for the eradication of tuberculosis in—how many years did they think?

Dr. Blomquist. They were speaking of embarking on the eradication program, beginning it. I am sure that even they felt that though eradication could start, it would take a long period.

Mr. Fogarty. How long?

Dr. Blomquist. Well, I do not think anyone ever said in terms of time. This is true of that conference and subsequent conferences—that one could not predict a period when we would not have any tuberculosis.

What they talked about were the things that would massively reduce the incidence of tuberculosis.

TUBERCULOSIS VACCINE RESEARCH

Mr. Fogarty. What is the possibility of the development of a vaccine that would prevent tuberculosis?

Dr. Blomquist. Research is going ahead.

Mr. Fogarty. If a vaccine was discovered that would prevent tuberculosis, you could establish a time schedule, could you not, for all practical purposes?

Dr. Blomquist. We could talk about preventing new cases then.

Mr. Fogarty. The best thing we have now is isoniazid?

Dr. Blomquist. The best thing we now have is a series of drugs. And there are a number of them, isoniazid being one of the commonest, most available, having the advantage also that you can take it by mouth.

By and large, patients are treated with one or two drugs, not a single drug.

Mr. Fogarty. Isoniazid alone is not given?

Dr. Blomquist. For advanced cases of tuberculosis another drug is universally given. For the minimal cases many are using isoniazid alone.

TUBERCULOSIS ERADICATION PROGRAM

Mr. Fogarty. What kind of a program do you think we could mount in this country that would eradicate tuberculosis?

Dr. Blomquist. I think we have to consider in tuberculosis not only the uneven distribution that I mentioned, but also the fact that a large number, probably something like three out of four cases of tuberculosis that are occurring today, occur in persons who were infected years ago. And so they carry around a dormant infection that, with age and other stresses, breaks down into active disease. It is not like some diseases which one can immunize against and prevent.

The largest number of people have a source of infection within their body, and we do not have any other preventive measure at our command now than the potential use of isoniazid.

As I indicated, we can give only solid figures as to isoniazid's effectiveness for the year the pills are being taken. Only time will give us the answer for longer periods.

Mr. Fogarty. Here is an article that I read in the Washington Post, on November 17, 1961: "Fight on TB Can Be Won, World Told." And this was given by Dr. Fred L. Soper.

Dr. Blomquist. Yes, sir.

Mr. Fogarty. Who is Director of the Pakistan-SEATO Cholera Research Laboratory.

Dr. TERRY. Dr. Soper is the former Director of the Pan American Health Organization.

Mr. FOGARTY. He thinks it can be eliminated, and says:

> No price tag was set on the cost of eradication, but it was estimated that it would take 10 years and cost $360 million to knock tuberculosis completely out of Latin America, one of the most troubled areas.

What do you think it would cost to mount such a program in this country, and how long do you think it would take?

Dr. BLOMQUIST. I do not have the figures just as you asked them, but in thinking of eradication, one has to think of the successive steps. I think that a lot of steps must precede eradication. For instance, we certainly have to assure that all cases, current cases of tuberculosis, are under treatment. And this is what we are working hard on in this country, to see that all known cases are getting adequate care.

Then I think as the second step, we must identify all those that have not been recognized as having tuberculosis. We must carry on an intensive case-finding program.

Then the third step, we must identify those persons whose tuberculosis has been inadequately treated so that they do not have a real risk of breaking down again with tuberculosis.

And fourthly, I think there would be a program of identifying those infected persons who are at special risk of disease.

Then I think, if that had been accomplished, we would have tuberculosis down to where, perhaps, a surveillance program would keep it constantly at a point where we would consider it no longer a public health problem.

Mr. FOGARTY. All right, how long do you think it would take to do all that, and how much would it cost?

Dr. BLOMQUIST. You recall we estimated a year or two ago that it would cost a considerable amount more money than is available right now to do that. I would have to——

Mr. FOGARTY. How do you know whether there is enough money available or not?

Dr. BLOMQUIST. I meant currently being set aside for tuberculosis.

Mr. FOGARTY. You mean what the Department allowed you? I noticed the Bureau of the Budget treated you pretty good, but your own Department gave you a sizable cut. That is a pretty good cut percentagewise. What was it, $9 million to $6 million? What is that percentagewise?

Dr. BLOMQUIST. Thirty percent.

Mr. FOGARTY. Thirty-three or thirty-four percent.

What are you, the orphan in the Public Health Service? I think that is the biggest cut that the Department of Health, Education, and Welfare has given any division in the Public Health Service. What happened?

Dr. BLOMQUIST. What we had asked for was to institute a massive reduction program in tuberculosis. We were not talking about eradication at this point because of some of the technical problems I indicated. We though that, had we had additional money, we might have used it for the second phase that I mentioned in the series of four.

Mr. FOGARTY. I am going to ask you to supply for the record what you could do with the $3 million that the Department cut from your budget and how it would affect the overall problem of tuberculosis in the country, how you feel it would.

Dr. **Blomquist.** Yes, sir.

(The requested information follows:)

Proposed Use of Funds Disallowed by Department

As stated in the record, tuberculosis control must progress in four successive but overlapping steps of emphasis: (1) Adequate treatment for known active cases; (2) finding all presently unknown active cases and bringing them to treatment; (3) identifying persons whose tuberculosis was inadequately treated in the past and treating them to prevent recurrence of disease; and (4) identifying infected persons at special risk of disease and treating them prophylactically.

In the current fiscal year, we are placing major emphasis on the first step. Project grants from the 1962 appropriation are going to communities with large tuberculosis caseloads to help them bring under current treatment all of the known active cases, at the same time examining contacts of active cases and providing diagnostic service for persons suspected of having tuberculosis. This emphasis will continue in fiscal 1963 in the same areas and a few others will be added.

The additional funds above those in the budget request would be used to reach additional high incidence areas with special help in the first step described above. As communities become current in their services to patients, contacts, and suspects, some of the additional funds would be used to help them increase emphasis on the second step, finding the unknown cases and bringing them under treatment. They would also be applied to insure that basic services would be maintained in areas of lower incidence, where the elimination of tuberculosis as a public health problem is reasonably possible relatively soon. These areas will be the ones most seriously handicapped by the reduction in formula grants for tuberculosis control.

If the $2,829,000 in additional funds were made available, $1 million would be used to maintain formula grants to all the States at the level of the current (1962) fiscal year. Project grants to high incidence areas would be increased by $1,629,000 to extend grants for services to patients, contacts, and suspects (including prophylactic treatment where indicated), and to add project grants to begin to increase emphasis on casefinding. In order to maintain close liaison with communities receiving project grants, the remaining $200,000 (19 positions) would be used to increase technical services to the States through direct operations.

In terms of the overall tuberculosis control problem the additional funds would make it possible, by the end of 1963, for most of the 27 communities with the highest incidence of tuberculosis to be current in step 1; that is, they would have all of their known active cases under treatment. Some of these communities would have begun to increase efforts to find unknown cases and bring them under treatment.

ISONIAZID FOR PREVENTION

Mr. **Fogarty.** This article in the New York Herald Tribune, September 27, 1961, by Earl Ubell, their science writer, says—

> For a penny a day, Americans can now protect themselves against tuberculosis by swallowing three small pills of isoniazid, a powerful antituberculosis drug.

Is that a little misleading?

Dr. **Blomquist.** I think it is misleading in one sense: that the main costs are not the cost of the drug itself, but the services that go with it. It is true that isoniazid——

Mr. **Fogarty.** Do not go too far, now, because farther down it says:

> Dr. Luther Terry, the Health Service Surgeon General, who made the announcement, said that the drug used as a preventive could reduce substantially the 55,000 new cases of TB each year as well as the 10,000 deaths. Before isoniazid was used to treat TB. in 1952 the disease took 30,000 lives a year.

Dr. **Blomquist.** I do not mean to minimize the usefulness of it. I was trying to refer to the costs, the cent a day.

Mr. **Fogarty.** This was not attributed to Dr. Terry.

Dr. **Blomquist.** No; the headline indicated a cent a day.

Mr. **Fogarty.** A cent a day. That is what it says.

Dr. **Blomquist.** As I indicated in my opening statement, we are very optimistic about the use of isoniazid prophylaxis. Heretofore, we had been able to prescribe it for selected youngsters to prevent complications of active primary tuberculosis. Now we know that its use among family contacts can prevent active disease among them; in the same proportion—80 percent.

Mr. **Fogarty.** You are not satisfied with the progress you are making, are you? You are quoted here as having said: "TB decline in United States called too slow."

Dr. **Blomquist.** Yes. As I indicated, that while that was a decline——

Mr. **Fogarty.** You did say that?

Dr. **Blomquist.** I did say that. That was the headline in the New York Times on November 5, 1961.

TUBERCULOSIS RATE IN DISTRICT OF COLUMBIA

Mr. **Fogarty.** The District of Columbia is second to Alaska, I notice.

Dr. **Blomquist.** It is high among the——

Mr. **Fogarty.** Right here in the Nation's Capital we have the second highest rate in the Nation. And the only reason the Alaska rate is higher is because of the Eskimo population.

Dr. **Blomquist.** In Alaska the problem is largely confined to the Eskimo and the Indian.

Mr. **Fogarty.** Mr. Denton?

ANNUAL TUBERCULOSIS COST

Mr. **Denton.** You said tuberculosis costs $750 million a year?

Dr. **Blomquist.** Yes, sir.

Mr. **Denton.** I was just figuring here that it has gone down 5 percent. That means you save $37.5 million.

Now, it looks to me like that is a pretty good investment, if that is the case.

We spent last year how much?

Mr. **Kelly.** $6.5 million.

Mr. **Laird.** Of course, there is a lot more than that spent, Mr. Denton, because you have the States and the counties that are all in this program, too.

Dr. **Blomquist.** That is what this $750 million is. The larger proportion, of course, goes into hospital care, which is provided by State and local contributions.

Mr. **Denton.** How much do you think the States would be saved? How much of this $750 million is States and how much is the Government's?

Dr. **Blomquist.** The amount of money that we contribute through the money supporting our program is a small proportion. It is less than 1 percent of the total. If one considers only the control efforts, it is about 15 percent of the total effort.

Mr. DENTON. Of course, you are the ones that are doing the research.

Dr. BLOMQUIST. We are doing considerable research.

Mr. DENTON. And the research, if it saves the public or State or local government, is all money for the benefit of the taxpayers.

Dr. BLOMQUIST. Yes, indeed.

Mr. DENTON. No matter whether they are State taxpayers or whether they are Government taxpayers. But you have saved some $37 million in there by your tuberculosis control. And you think it could be stepped up twice that much?

Dr. BLOMQUIST. What would be saved?

Mr. DENTON. I understood you to say it should and could be stepped up twice that much.

Dr. BLOMQUIST. Yes.

I would like to reach our goal we set up for a reduction in cases of twice as much as we actually experienced this last year.

DECREASE IN HOSPITALIZED TUBERCULOSIS PATIENTS

Mr. DENTON. In my State the tuberculosis hospitals have very few patients now. We are having the same experience in our Government hospitals, a much smaller number than we had before. And that is certainly a saving to the local government; it is a savings to the States.

We do have one hospital where the patients do not seem to decrease in my State. Do you know of any reason why that should be?

Dr. BLOMQUIST. The population?

Mr. DENTON. The population of the hospital has not decreased any in one hospital. Do you know why that should happen?

Dr. BLOMQUIST. Well, I do not know the specifics of it. As we watched the national hospital census, the first thing we found was that the decrease was due to the shortened period of hospital stay, and this has made a real impact in the number of hospital beds needed.

Then as we get less cases reported, there are actually in absolute numbers fewer patients who need hospital care.

Mr. DENTON. The patients in a tuberculosis hospital should decrease, should they not?

Dr. BLOMQUIST. The number is decreasing.

Dr. TERRY. But, Mr. Denton, this may be influenced by a decision that is made by State, or locally, that existing cases will be concentrated in one hospital. So the census there may stay up, where it is dropping in other hospitals.

Mr. DENTON. Off the record.

(Discussion off the record.)

Mr. DENTON. Back on the record.

PREVENTION OF TUBERCULOSIS

But it does seem to me that you made such progress in this program and we have very largely eradicated yellow fever and malaria, and we have brought a great many other infectious disease under control. I just would like to know what kind of a program you could put on that would put tuberculosis in the same category so it would be eliminated as an infectious disease, or if you could do it.

Dr. Blomquist. We could do a lot. I do not think that the same measures would be applied to tuberculosis, because of the different nature of the disease. But certainly we could, first of all, prevent new cases arising through infection of one person to another, and that would make a real impact.

If we could use the instruments we have to prevent tuberculosis, such as the application of isoniazid to large numbers of people who would benefit from it, we would reduce the breakdown of disease.

TUBERCULOSIS ERADICATION

Mr. Denton. How close could you come to eliminating it?

Dr. Blomquist. I hesitate because of the definition of "elimination."

Mr. Fogarty. Well, let us call it eradication.

Dr. Blomquist. Or eradication to the point that we would have no persons tuberculin positive. I think there are serious limitations to what we can do at the present time to greatly diminish the amount of infection. We certainly can take measures so that all our new generations would grow up tuberculin negative, free of tuberculosis.

Now, many people aged 60 and above have that infection, and there is not a thing we can do for them at the moment except watch them, and then if they break down with tuberculosis, to treat them.

Mr. Denton. Would you put in the record what that program would cost?

Dr. Blomquist. Yes, sir; I would be glad to try.

(The requested information follows:)

Cost of a Program Toward Elimination of Tuberculosis

A practical program toward elimination of tuberculosis as a public health problem in the United States could be accomplished by acceleration of present tuberculosis control efforts during the next 10 years, at an added cost of approximately $128 million spread over the 10-year period. As a result of this increased effort, by 1972 in many areas of the Nation, tuberculosis would not be occurring, cases would be at a very low level, infection would be confined to older people, young people would be growing up uninfected. Control activities in these areas would be at a surveillance level.

In the 10 years of such a stepped-up program 12,300 lives would be saved, resulting in a tuberculosis death rate by 1972 of 1.1 as compared with the 1960 rate of 5.8 per 100,000 population. The rate of new active cases reported, which would decrease slowly at first because of improved casehandling, would be reduced by 1972 to 8.6, as against 30.8 in 1960. This rate would represent a total of 19,100 cases, 36,400 fewer than in 1960. The rate of new infection would be significantly lowered during the 10 years, and in 1972 the total number of infected persons (tuberculin reactors) would be 10 million less than at present; an increased proportion of them would be in the older age groups, and there would be virtually no infection among preschool children.

The period of lost earning power of most tuberculosis patients, which now ranges from 18 months to 2 years, would be cut in half. Indeed, for some patients treated at a very early stage of disease, there would need to be no period of lost earning power.

The program necessary to bring about this massive reduction of the tuberculosis problem would consist of improvements in the quality and quantity of both treatment and casefinding programs.

In order to accomplish these improvements, it would be necessary to increase special project grants to the States significantly during these 10 years, and to increase direct operations to give adequate professional service to project areas. During the first 5 years, some special project grants would continue to emphasize improved services to known active cases, contacts, and suspects. As better programs in this area became established, project grant emphasis would change to concentrated, thorough, well-directed casefinding. In the later years of the decade it would be possible to direct project grants to finding and retreating persons whose tuberculosis had previously been inadequately treated and to extending prophylactic treatment beyond contacts of active cases to other persons at special risk of disease.

During the first 5 of the 10 years, the States would need to increase their expenditures for tuberculosis hospital care; after 5 years, sufficient reduction in the need for hospital care would occur so that the increased rate of expenditure would no longer be necessary.

It would be essential during the decade that State tuberculosis control programs in all areas would be stepped up and maintained at a high level, and to insure this, Federal formula grants would need to be increased, and State expenditures equally increased. At the end of the 10 years, special project grants could be discontinued, leaving formula grants to maintain and further the gains that would have been achieved.

The estimated cost of this accelerated program toward elimination of tuberculosis is detailed in the following table:

Projected increased cost for 10-year program (1963–72)

[In millions of dollars]

Federal program	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	Total
Increases:											
(*a*) Formula grants	------	1.0	1.5	2.0	2.0	2.5	2.5	1.5	1.5	1.5	16.0
(*b*) Special project grants	2.6	4.5	7.5	9.5	10.5	10.5	10.5	7.5	4.5	1.5	69.1
(*c*) Professional services	.2	.5	1.0	1.1	1.1	1.1	1.0	.7	.3	------	7.0
Total increase	2.8	6.0	10.0	12.6	13.6	14.1	14.0	9.7	6.3	3.0	92.1
1962 base	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	65.0
Total cost	9.3	12.5	16.5	19.1	20.1	20.6	20.5	16.2	12.8	9.5	157.1
Increase in State and local expenditures would be $16,000,000 for public health activities, an amount equal to the increase in formula grants; and 20,000,000 for improvements in hospital care during the 1st 5 years	------	------	------	------	------	------	------	------	------	------	36.0
Overall increase—Federal, State, and local	------	------	------	------	------	------	------	------	------	------	128.1

Dr. Terry. Mr. Chairman, if I may suggest something, I think if Dr. Blomquist directed his estimations and remarks toward eliminating it as a public health problem and not trying to talk about complete elimination, which is—at least, we cannot promise complete elimination in terms of the existing circumstances in this country at any particular time now, almost regardless of how much money we had.

But in terms of case detection and the prevention of other cases and treatment and so forth, I think that we can project ourselves toward a practical program of elimination of tuberculosis as a public health problem.

Mr. Fogarty. What position does it hold for deaths occurring in this country?

Dr. Blomquist. The relative rank of tuberculosis?

Mr. Fogarty. Yes.

Dr. Blomquist. It is about in 14th place.

Mr. Fogarty. How much?

Dr. Blomquist. Fourteenth.

Mr. Fogarty. I am not talking about accidents and things like that, but just disease, the disease category.

Is it that low?

Dr. BLOMQUIST. It is customary to speak of the first 10 causes of death. We have not been keeping track of this as closely now. The last time I was looking at it——

Mr. FOGARTY. It was not among the first 10?

Dr. BLOMQUIST. Not among the first 10. It was 14th, for the adult aged.

Mr. FOGARTY. Mr. Laird?

Mr. LAIRD. I have no questions.

Mr. FOGARTY. Do you have anything more to say, Doctor?

Dr. BLOMQUIST. I have nothing more. Thank you.

Mr. FOGARTY. Thank you very much, Doctor.

Dr. BLOMQUIST. Thank you, Mr. Chairman.

CONTROL OF VENEREAL DISEASES

MONDAY, FEBRUARY 5, 1962.

WITNESSES

DR. WILLIAM J. BROWN, CHIEF, VENEREAL DISEASE BRANCH, COMMUNICABLE DISEASE CENTER

STEPHEN J. ACKERMAN, FINANCIAL MANAGEMENT OFFICER FOR COMMUNITY HEALTH PROGRAMS

DR. LUTHER L. TERRY, SURGEON GENERAL

JAMES F. KELLY, DEPARTMENT BUDGET OFFICER

Object classification

[In thousands of dollars]

		1961 actual	1962 estimate	1963 estimate
11	Personnel compensation:			
	Permanent positions	2,068	2,103	2,103
	Positions other than permanent	778	1,068	1,651
	Other personnel compensation	11	6	6
	Total personnel compensation	2,857	3,177	3,760
12	Personnel benefits	235	249	266
21	Travel and transportation of persons	179	194	194
22	Transportation of things	59	58	58
23	Rent, communications, and utilities	23	23	23
24	Printing and reproduction	20	20	20
25	Other services	63	63	63
	Research contracts	165	164	164
	Payment to "Bureau of State services management fund"	432	438	438
26	Supplies and materials	123	127	127
31	Equipment	100	53	53
41	Grants, subsidies, and contributions	1,532	1,434	1,834
	Total obligations	5,788	6,000	7,000

Personnel summary

	1961 actual	1962 estimate	1963 estimate
Total of permanent positions	324	324	324
Full-time equivalent of other positions	177	232	352
Average number of all employees	472	528	648
Number of employees at end of year	495	562	682
Average GS grade	9.0	9.0	9.0
Average GS salary	$6,952	$7,037	$7,037

Program and financing

[In thousands of dollars]

	1961 actual	1962 estimate	1963 estimate
Program by activities:			
1. Grants to States	2,379	2,585	3,585
2. Research, training, and technical services	3,406	3,425	3,415
Total program costs [1]	5,785	6,010	7,000
Change in selected resources [2]	3	−10	
Total obligations	5,788	6,000	7,000
Financing: Comparative transfers from other accounts	−5,788		
New obligational authority (appropriation)		6,000	7,000

[1] Includes capital outlay as follows: 1961, $92,000; 1962, $64,000; 1963, $64,000.

[2] Selected resources as of June 30 are as follows: Unpaid undelivered orders, 1960, $41,000; 1961, $44,000 1962, $34,000; 1963, $34,000.

Mr. FOGARTY. Dr. Brown, we are very glad to see you again.

Dr. BROWN. Thank you.

Mr. FOGARTY. I have not seen you since Atlanta.

Dr. BROWN. No, sir, I believe not.

GENERAL STATEMENT

Mr. FOGARTY. Do you have a statement for the committee?

Dr. BROWN. I have a statement to submit, sir, for the record——

Mr. FOGARTY. Very well. We shall put that in the record.

(The statement follows:)

STATEMENT BY CHIEF, VENEREAL DISEASE BRANCH, COMMUNICABLE DISEASE CENTER, ON "CONTROL OF VENEREAL DISEASES, PUBLIC HEALTH SERVICE"

EXTENT OF SYPHILIS PROBLEM

Mr. Chairman and members of the committee, in 1961, 18,781 cases of infectious syphilis were reported to health authorities in this country. This was the second consecutive year in which an increase of over 50 percent was reported. Since 1957, there has been a threefold increase; and in the first 6 months of the current fiscal year, that is from July 1 to December 31, more than 10,200 cases have been reported. Not since 1950 have primary and secondary syphilis cases been reported in this magnitude.

SURGEON GENERAL'S TASK FORCE ON SYPHILIS

Last spring the House Appropriations Committee stated in its report on the venereal disease appropriation that "Syphilis is easily detected and in the early stages treatment is successful and not difficult. This is a disease that ought to be eliminated in the United States * * *. The committee will expect the Public Health Service to have recommendations for an effective program when hearings are held next year." As a result. the Surgeon General appointed a task force with Dr. Leona Baumgartner of New York City as chairman and with membership from the Public Advisory Committee on Venereal Disease Control to review the syphilis problem and the control programs designed to combat it and to recommend a course of action which would lead to the eradication of syphilis as a public health problem. This task force has reported and copies of its report have been made available to this committee. Let me, if I may, summarize its recommendations and indicate how they relate to the budget estimate before you.

TASK FORCE RECOMMENDATIONS

First, the task force recognized that syphilis cases were occurring in numbers greatly in excess of those being reported.

Secondly, the task force found that the control techniques of case interview and reinterview, contact and suspect investigation, and cluster testing were effective in stopping the spread of syphilis from one individual to another. All measurements of the application of these tools of syphilis epidemiology indicated that they were being applied with increasing efficiency, but they were being applied to too small a percentage of occurring cases to stem the tide of spreading infection.

Thirdly, the task force felt that these tools of syphilis epidemiology could lead to the eventual eradication of the disease if they were applied intensively to an increasing percentage of occurring cases and that this could be achieved if a comprehensive program of physician visitation and laboratory report followup were undertaken on a nationwide basis.

Specifically, the task force recommends that health departments undertake to visit, at least annually, every physician in the United States in order to alert them to the seriousness of the syphilis problem and of the program for its eradication, and to outline to them the absolute need for their participation in cooperative control endeavors through case reporting and requesting the interview of infectious cases by trained health department personnel. As a demonstration of what this kind of program can produce, let me cite the experience of Rhode Island, a presumed low incidence area. In the 3-month period, July 1 to September 30, 1961, private physicians reported no cases of primary and secondary syphilis to the State health department. In October a questionnaire was mailed to all physicians in the State, asking whether they had seen and treated any cases during that period; 65 percent of the physicians queried responded to the questionnaire. These responses indicated that 18 cases of infectious syphilis were actually treated during the 3-month period. In late October, 5 representatives of the health department began to visit all physicians in the State and, in 4 weeks, had made personal contact with 1,094 out of 1,156 registered physicians. The response of these physicians to the positive action on the part of the health department was wholeheartedly enthusiastic. This type of program, if carried on in every State, would produce, for epidemiologic followup, close to 100 percent of the cases being treated by private physicians.

The task force likewise recommends that every State adopt or implement laws or regulations to require that all laboratories, public or private, including hospitals, notify health authorities of every positive finding in a test for syphilis. Health departments would then check with submitting physicians to determine the diagnostic status of the patient and if infectious syphilis was present, to ask for permission to interview. On July 1, 1961, North Carolina adopted such a procedure following the passage of a law by their legislature. The 234 private laboratories in the State were visited and familiarized with the reporting requirements. As a result, 64 cases of early syphilis were reported and made available for epidemiologic followup in the first 3 months of the program. These cases would have otherwise been missed. The fact that programs like this do work convinced the task force and convinces us that the eradication of syphilis is a realistic objective for public health workers to pursue. Physician visitations and laboratory report followup, working in tandem, as it were, can produce for health department action and epidemiologic investigation, a sufficiently high percentage of occurring syphilis cases to force a rapid downward trend in the incidence of new cases and force the eventual elimination of the disease itself.

GRANTS TO STATES

To accomplish these objectives, the task force recommended that some 500 additonal field workers be added to health department staffs throughout the country. The $185,000 made available to the Public Health Service for 1962 over 1961 has permitted the budgeting of some 40 additional positions for this work. The 1963 budget request for control of venereal diseases includes a $1 million increase which will provide 150 additional fieldworkers. These increases are intended to provide the initial impetus to accelerated control activities throughout the country which will lead, within the next 10 years, to the eradication of syphilis as a public health problem. The concept of syphilis eradication as a practical public health goal has the endorsement of all levels within the Department of Health, Education, and Welfare, and of the President's budget review committees. The increase of $1 million in 1963 would be the start of an effective eradication program.

RESEARCH, TRAINING, AND TECHNICAL SERVICES

No other increases are requested in this budget. Venereal disease research is progressing in two fundamental areas—(1) basic research on the problems of producing syphilis immunity artificially, and (2) research on practical and effective diagnostic and screening tools for gonorrhea.

In the area of syphilis immunity, we are slowly accumulating information on antigen-antibody patterns, on the protein fractions of the spirochete itself, and on the nature of immune response in man and animals. But at present, we do not foresee any major breakthrough which would permit optimistic forecasts on the development of an antisyphilis vaccine in the immediate future. It is hoped that the World Forum on Syphilis and the Other Treponematoses, sponsored by the Public Health Service and other interested agencies, in Washington next September, will provide additional information on and an impetus to the search for a vaccine.

In gonorrhea, however, although field trials of the use of fluorescent antibody techniques in gonorrhea diagnosis, are still going on, we feel that the FA technique will provide a practical solution to the problems of diagnosis which have plagued control efforts for years. Syphilis eradication must now receive a major portion of our attention and resources, but there is real hope that we can now anticipate, for the years to come, real progress against gonorrhea as well.

Mr. Chairman, I shall be glad to answer any questions you may have about this program and the budget request.

Dr. Brown. I would like to make comments.

Mr. Fogarty. All right, go ahead.

INCREASE IN SYPHILIS

Dr. Brown. In fiscal 1961, 18,781 cases of infectious syphilis were reported to health authorities throughout the Nation. This was the second consecutive year in which an increase of over 50 percent was reported in these cases. And since 1957, there has been a threefold increase of infectious syphilis.

In the first 6 months of the present fiscal year, 1962, more than 10,200 cases have been reported; and not since 1950 has infectious syphilis been recorded in that magnitude.

TASK FORCE FOR VENEREAL DISEASE ERADICATION

Last spring, at the House Appropriations Committee meeting, they stated that syphilis is a disease which should be eliminated from the United States.

Mr. Fogarty. That is right.

Dr. Brown. And the committee went on to say that it would expect Public Health Service to have recommendations for an effective program when the hearings are held next year.

Mr. Fogarty. That is right.

Mr. Brown. As a result of this, the Surgeon General appointed a task force with the Chairman, Dr. Leona Baumgartner, the city health commissioner of New York, to examine the problem and to examine the programs to combat it.

Mr. Fogarty. Give us the names of the other members.

Dr. Brown. Yes, sir.

The other members of the task force committee in addition to the Chairman, Dr. Leona Baumgartner, commissioner of health, City of New York, were Dr. Arthur C. Curtis, professor and chairman, Department of Dermatology, College of Medicine, the University of Michigan; Dr. A. L. Gray, executive officer, Mississippi State Board of Health; Mr. Benno E. Kuechle, vice president, Employers Mutuals of Wausau (Wisconsin); and Mr. T. Lefoy Richman, projects coordinator, National Commission on Community Health Services, New York City.

Mr. Fogarty. Is there any reason for picking these in a geographical manner or just because they are good men, or what?

I notice you have one from Wisconsin, but you do not have one from Rhode Island or one for all of New England. And you have two from New York.

Mr. Laird. Mr. Benno Kuechle is from my congressional district, Mr. Chairman.

Mr. Fogarty. Good.

Mr. Laird. I am sure the members were picked for their abilities, rather than any other considerations.

Mr. Fogarty. Go right ahead, Doctor.

Dr. Brown. The task force was asked, sir, for recommendations or course of action which would lead to the eradication of syphilis as a public health problem.

RECOMMENDATIONS IN TASK REPORT

The task force met and reported, and copies of the report have been made available to the members of this committee.

Mr. Chairman, I would like to summarize these recommendations and to indicate how they relate to the budget request before you.

First, the task force recognized that syphilis cases were occurring in numbers greatly in excess of those being reported.

Secondly, the task force found that the control techniques which are being used today are effective in preventing the transmission of syphilis from one individual to another. And they found that these control techniques were being applied with increasing efficiency. But they found that the control techniques were not being applied to the increasing number of cases that are occurring in numbers which would stem the tide of the infection.

Thirdly, the task force felt that these tools of syphilis epidemiology could lead to the eventual eradication of syphilis if they were applied to more and more of these occurring cases, and that this could be achieved if at the same time a comprehensive program of physician visitation and of laboratory report followup could be undertaken on a nationwide basis.

Mr. Chairman, I believe that the task force report is a true evaluation of the problem of syphilis, and I believe that an intensive application of the currently available tools as recommended could lead to the eradication of syphilis as a public health problem.

Now, specifically the task force recommended, one, that the States undertake to visit every physician at least annually and to persuade them to allow the interviewing of their cases, that is the infectious ones, as well as to report all of the cases of syphilis which they see and diagnose in their practice.

PROGRAM RESULTS

Now, as a demonstration of what this type of program can produce, I would like to cite Rhode Island's findings in such a program.

In the 3-month period July 1 through September 30 of 1961, not a single case of infectious syphilis was reported to the health authorities by practicing physicians in that State.

Mr. FOGARTY. What does that mean?

Dr. BROWN. That they were not reporting their communicable diseases, at least syphilis cases.

So, early in October, the health department sent out a questionnaire to every practicing physician within the State of Rhode Island, and, of the practicing physicians, 65 percent responded. And it was determined from the questionnaire that in that 3-month period—the questionnaire asked them, how many cases of infectious syphilis did they see and treat in that period of time—it was found from the questionnaire that they saw and treated 18 cases of infectious syphilis but had not reported any during that time.

Mr. DENTON. How many?

Dr. BROWN. Eighteen.

So, as a followup, the health department sent five of their workers out to visit the physicians to alert them to the seriousness of the problem, and to point out the need for reporting in the future.

This action by the health department was received wholeheartedly with enthusiasm by the practicing physicians. In 4 weeks' time, 1,094 out of the 1,156 practicing physicians were personally contacted by these workers.

Now, I think this type of program, sir, if done in all States, would produce more epidemiology followups by health authorities—almost 100 percent of the cases which are coming to the attention of the medical profession.

REGULATIONS REQUIRING LABORATORIES TO REPORT POSITIVE TESTS

Now, the task force also recommended that States adopt or implement laws or regulations to require all laboratories to notify health authorities of every positive test for syphilis which they see in the laboratories, in order that they may be followed back to the reporting physician to determine the diagnosis, and then to get permission for interviewing.

On July 1, 1961, North Carolina adopted such a procedure following passage of the law by their legislature. Two hundred and thirty-four private laboratories in North Carolina were visited and the directors were alerted to the reporting procedures. Sixty-four cases of early syphilis were brought to the attention of the health department for epidemiologic followup after the passage of this law. Now, if it had not been for this law and the followup of such tests, these cases would have been missed.

Now, sir, the fact that programs like this do work convinced the task force, and it convinces us, that in the eradication of syphilis this is a real public health service for us to pursue.

Now, carried out simultaneously with laboratories reporting and with good intensive epidemiology, it will force a rapid downtrend in the incidence of new cases of syphilis and force eventual eradication of the disease itself.

To accomplish these objectives, the task force has recommended some 500 additional workers be added to health department staffs throughout the Nation.

Mr. Chairman, I shall be glad to answer any questions about the program and the budget before you.

Mr. FOGARTY. Mr. Laird.

BUDGET AMENDMENT TO CARRY OUT THE PROGRAM

Mr. LAIRD. Mr. Chairman, I would like to ask the doctor whether this budget request which he has just presented before us will carry out the recommendations of this task force.

In the presentation he has made quite a bit out of the task force report, and I would like to know whether it can be carried out on the basis of the budget that he is presenting to us today.

Dr. BROWN. The budget request, Mr. Laird, is for an increase of $1 million in grants to States to initiate a program of this type.

Mr. KELLY. Mr. Laird, the Public Health Service's estimated additional requirements for 1962 of $1 million was included in their budget, but this was before we received the report. The Secretary indicated to you, that, having received the report, he wanted the recommendation of the Public Health Service in the light of this report and, if there were additional funds required, that he would recommend that the budget be amended to carry out the report. And the Surgeon General has asked his staff to develop an estimate along those lines.

Mr. DENTON. Are you going to submit it to the Bureau of the Budget?

Mr. KELLY. Yes, sir.

Mr. FOGARTY. I think if this could be decided upon quickly, it would be better. Then this committee could consider this request as an amendment to the 1963 budget.

Mr. KELLY. That is our intention, sir. If we get it up here, it will be before you for complete consideration in the bill.

Dr. TERRY. That is our intention, and I believe we can move pretty fast on it, Mr. Chairman.

COST OF ERADICATING CATTLE DISEASES

Mr. FOGARTY. I would like to have placed in the record, at this point, the costs of eradicating disease in cattle, including the indemnity payments the Federal Government has a part in, and also the inoculation program which is carried on in cooperation with the States by the Department of Agriculture.

(The requested information follows:)

SUPPLEMENTAL INFORMATION RELATIVE TO THE COST OF ANIMAL DISEASE CONTROL ACTIVITIES BY THE DEPARTMENT OF AGRICULTURE

The 1963 budget estimate for the Department of Agriculture provides $68,756,200 for animal disease and parasite research; animal disease and pest control activities; and meat inspection. This estimate includes funds for cattle indemnities and immunization in the bovine tuberculosis and brucellosis programs; funds for programs to exclude communicable diseases of foreign origin from this country; to prevent the spread of diseases through interstate shipments of livestock; to control and eradicate livestock diseases; and to provide Federal meat inspection in interstate commerce.

The amounts for animal disease control activities are as follows:

Animal disease and parasite research	$11,166,400
Animal disease and pest control activities	32,348,800
Meat inspection	25,241,000
Total	68,756,200

COMMITTEE CONCERN WITH THE PROBLEM

Mr. FOGARTY. Doctor, I think you made a good statement. But it is a very conservative one, in view of the task force report. We hope the Surgeon General will get up an amendment to this budget in time for us to consider it before we mark up the bill. If he does not, we might be able to do something about it anyway, because this committee has been very apprehensive about this problem since 1954.

In 1955, this committee and Congress added $700,000 to your budget. In 1956, we added $500,000. In 1957, we added another $500,000. In 1958, we gave the budget estimate—I do not know why we did not increase it that year—but in 1959, we put another $1 million into the budget. And in the 1960 budget we added $727,000, and we added $180,000 to your budget last year.

So since 1954, this committee has been trying to correct the mistakes made by the Department and the Bureau of the Budget in cutting down on expenditures in this area, because we were told 6 or 7 years ago that this problem had leveled off, and then it started to increase. Then last year, largely because of Mr. Marshall's interest, this committee told you it would expect a complete reassessment of your program and a blueprint for the eradication of syphilis.

TEXT OF TASK FORCE REPORT

We now have your task force report, which we just received last week, and we will place that in the record at this point.

(The requested information follows:)

THE ERADICATION OF SYPHILIS

A TASK FORCE REPORT TO THE SURGEON GENERAL, PUBLIC HEALTH SERVICE, ON SYPHILIS CONTROL IN THE UNITED STATES

(U.S. Department of Health, Education, and Welfare, Public Health Service)

WHY A TASK FORCE

In fiscal year 1961, 18,781 cases of infectious syphilis were reported to health authorities in this country. This was the second consecutive year in which an increase of over 50 percent was reported. Since 1957, there has been a threefold increase; and in the first 6 months of the current fiscal year, that is from

July 1 to December 31, more than 10,200 cases have been reported. Not since 1950 have primary and secondary syphilis cases been reported in this magnitude.

Last spring the House Appropriations Committee in its report on the venereal disease appropriation said: "Syphilis is easily detected and in the early stages treatment is successful and not difficult. This is a disease that ought to be eliminated in the United States * * *. The committee will expect the Public Health Service to have recommendations for an effective program when hearings are held next year."

As a result, acting on the recommendation of the Public Health Service Advisory Committee on Venereal Disease Control, Dr. Luther L. Terry, Surgeon General, Public Health Service, appointed a task force under the chairmanship of Dr. Leona Baumgartner, New York City Health Commissioner. Dr. Terry asked the committee to review the syphilis problem and the control programs designed to combat it and to recommend a course of action which would lead to the eradication of syphilis as a public health problem.

The task force met for the first time in New York City on September 13, 1961.

MEMBERS OF THE TASK FORCE

Leona Baumgartner, M.D., Chairman, commissioner of health, city of New York.
Arthur C. Curtis, M.D., professor and chairman, Department of Dermatology College of Medicine, the University of Michigan.
A. L. Gray, M.D., executive officer, Mississippi State Board of Health.
Benno E. Kuechle, vice president, Employers Mutuals of Wausau, Wis.
T. Lefoy Richman, projects coordinator, National Commission on Community Health Services, New York City.

THE CITY OF NEW YORK,
COMMISSIONER OF HEALTH,
New York, N.Y., December 29, 1961.

DR. LUTHER L. TERRY,
Surgeon General,
U.S. Public Health Servcie,
Washington, D.C.

MY DEAR DR. TERRY: It is my privilege to forward to you this report on syphilis control in the United States, prepared at your request by a task force assembled for that purpose.

The report emphasizes intensive use of the skills, knowledge, and equipment already available. It does not concern itself greatly with research, though obviously the control of any disease may be enhanced by new, original discoveries. Nevertheless, I am sure I speak for every member of the task force when I say that effective action to eliminate syphilis as a public health hazard need not wait for further studies. It can proceed immediately. The basic ingredients for an effective program are available. Scientific knowledge of how to deal with the disease, and hundreds of trained, dedicated people in State and local health departments and on your own staff have shown how the job can be done. They have been hampered by slim budgets and apathy, both public and professional.

It has been a pleasure and a rare privilege to work with my distinguished colleagues on the task force. We hope our work will be of real assistance to you in helping to shape the future of VD control in the United States.

Sincerely yours,

LEONA BAUMGARTNER,
Commissioner of Health.

FOREWORD

The mission assigned to the task force by Surgeon General Luther L. Terry was "to evaluate present efforts to control syphilis and to recommend principles and methods that will make it possible to establish a timetable leading to the eradication of syphilis as a public health problem."

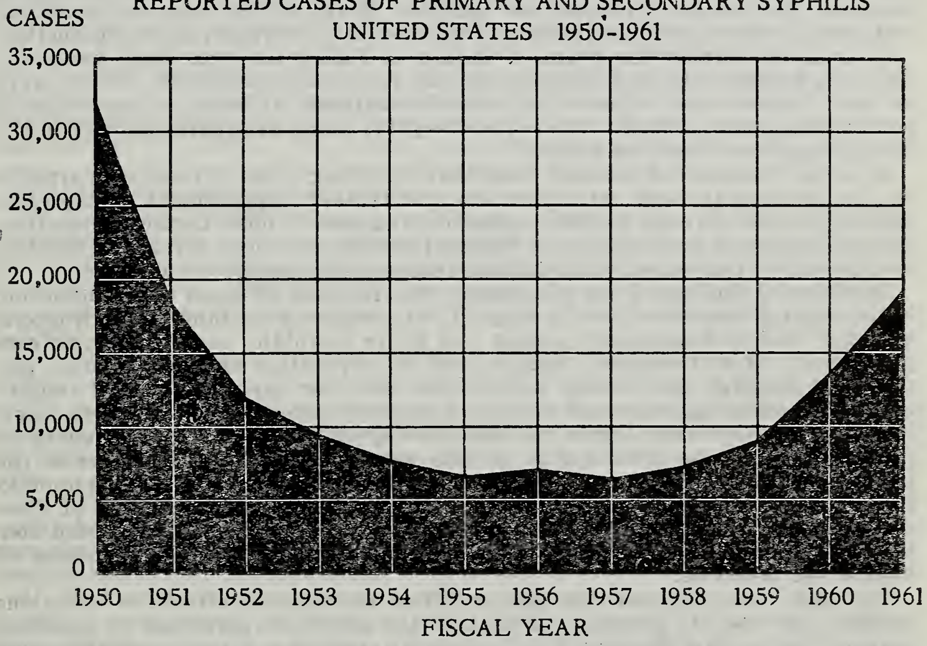
Throughout its deliberations, the task force has assumed that the Surgeon General's assignment is feasible. It has assumed further that any added cost of implementing its recommendations is to be preferred over perpetuating unnecessarily the maintenance of the syphilitic insane and the syphilitic blind at a cost that is 10 times the Federal appropriation for prevention and control and 3 times the combined expenditures for venereal disease control activities in the entire public sector.

The task force has also been mindful of the following:

1. The 18,781 persons reported with infectious syphilis in the United States during fiscal year 1961 were the greatest number of such cases reported in any year since 1950.
2. The rise in infectious syphilis has been particularly sharp since 1959, and more than a 50-percent increase has been reported per year for each of the past 2 years.
3. Health officials have expressed particular alarm over the increase in syphilis among teenagers. Their reports show that, between 1956 and 1960, there was a rise of more than 130 percent in infectious syphilis among persons under 20 years of age.

FIGURE 1

REPORTED CASES OF PRIMARY AND SECONDARY SYPHILIS
UNITED STATES 1950-1961



4. The House Appropriations Committee is "greatly disturbed," and rightly so, "as a result of the factual information received concerning the increases in venereal disease," and states without reservation, in its report on the VD appropriation for fiscal 1962, that "this is a disease that ought to be eliminated in the United States."

The task force reviewed and analyzed critically all available data and thinking on the syphilis problem. The different backgrounds and competencies of the task force members brought a variety of judgments to bear on the problems of control.

The task force acknowledges and wishes to express its gratitude for the very effective staff work provided by the Venereal Disease Branch of the Communicable Disease Center, U.S. Public Health Service, and for the thoughtful cooperation of William J. Brown, M.D., Chief of the Venereal Disease Branch, and C. A. Smith, M.D., Director, Communicable Disease Center.

It should be noted that the task force regarded its mission as recommending program practices which could be developed within the context of present knowledge and skills. It was not unmindful of the need for continuing research in al facets of the control activity, particularly immunology, therapy, and laboratory procedure.

LEONA BAUMGARTNER, M.D.
ARTHUR C. CURTIS, MD.
A. L. GRAY, M.D.
BENNO E. KUECHLE.
T. LEFOY RICHMAN.

SUMMARY OF FINDINGS AND RECOMMENDATIONS

The task force is particularly disturbed at four items:

1. Evidence of a chain reaction in the spread of syphilis infection, especially among teenagers;
2. Evidence that the actual number of cases occurring far outnumber the cases reported;
3. Evidence that effective techniques of control and therapy to stop the spread of syphilis are available but not applied widely enough;
4. Evidence that unless a vigorous, stepped-up program is inaugurated now, the increased spread of syphilis currently being observed may be accelerated.

No public health effort in modern times demonstrates more dramatically than the control of syphilis the results of failure to follow through on a successful program, the results of reliance on "miracle" drugs rather than on casefinding and proven pubic health practices, and the results of overhasty budget reduction.

Fortunately, during the years of failure to follow through, some voluntary agencies, professional societies, and certain physicians and health officers were at hand to voice their dissent and work to maintain at least the nucleus of a nationwide control effort. Otherwise, the gains made in syphilis control in the 1940's might have been lost utterly.

It is the consensus of the task force that the rising trend of infectious syphilis can be reversed through intensification and further improvement of the casefinding process, through quicker access to, and use of, operational information, through increased participation in venereal disease control by private physicians, and through a fact-based, plain-talking venereal disease education effort.

Members of the task force understand that reversal of trend and elimination of the syphilis hazard will not be easy. It will require more funds, more workers, a higher "index of suspicion" among, and better morbidity reporting by, private physicians. It will require a higher level of cooperation among all public, private, and hospital laboratories doing blood tests for syphilis. It will require speedier casefinding, improved interstate communications, more complete interviewing and reinterviewing of all infectious syphilis patients for sex contacts, and extension of the interview to include acquaintances and associates of the patients. It will require an informed public, active support by community leaders, and an aggressive effort to keep the facts before both. And all of these resources, activities, and attitudes must be supported by imaginative and continuing research in laboratory and clinic and in the multiple dimensions of human sex behavior.

The task force believes that such a direct coordinated attack on infectious syphilis can stop its spread, and that, if the attack is permitted to continue unabated for at least 10 years, it will eliminate syphilis as a public health hazard in the United States.

In order that health services may accomplish this formidable objective, the task force recommends:

(1) That an intensive effort be inaugurated to enlist the private physician and his professional societies and associations in the control effort, providing for at least 2 visits per year by a qualified health worker to 100,000 general practitioners in the country and 1 visit a year to the remaining 130,000 physicians. The primary purpose of these visits will be to show each physician how the program works to eliminate syphilis and to enlist his cooperation in reporting cases and permitting his patients to be interviewed. The program will demonstrate the physician's role and responsibility, and it will raise the level of his alertness to the signs and symptoms of syphilis in his patients. Such a program will require 300 additional workers.

(2) That a program be established to insure that all laboratories (public, private, hospital, and blood bank) processing blood tests for syphilis cooperate in the control effort by reporting to appropriate health departments all positive specimens by name of patient.

Success in the laboratory reporting program will require that State health departments implement existing laws and regulations; or, that in the absence of existing laws or regulations, State health departments take the necessary steps to bring about the enactment of laws or regulations which require such reporting.

The laboratory reporting program will require additional workers to visit each of 8,000 laboratories processing blood tests for syphilis and to followup on resulting leads to infectious syphilis. The program will clarify for laboratory directors in private and hospital laboratories the requirements of reporting positive blood tests to the health department, and the program will demonstrate what the support of laboratory directors will mean in effective casefinding. This program will bring to examination (and treatment if needed) the annual total of 350,000 persons that respond positively to the test for syphilis but are now not receiving attention. Included in this group are an estimated 3,500 persons with infectious syphilis.

The task force has carefully studied the personnel needs for adequate laboratory coverage and for followup of case-finding leads to infectious cases. It recommends that at least 75 additional workers be employed to carry out this phase of the program.

(3) That current interview-investigation services be intensified and extended to cover all infectious syphilis cases and that every such case be interviewed and reinterviewed for sex contacts, acquaintances, and associates, regardless of reporting source. Persons with potentially infectious syphilis (early latent) likewise should be interviewed and reinterviewed. If chains of infection are to be broken, every single case of infectious and potentially infectious syphilis that is turned up must be interviewed, and his contacts, associates, and acquaintances brought to examination. The 2,300 persons with infectious syphilis who were known not to have been brought to treatment in 1961 for lack of complete interview-investigation is a disturbing measure of lost opportunity to stop further spread of this disease. The added manpower recommended is essential to remedy these failures and to assure that funds spend for VD control become, in the long run, a profitable investment.

The task force has reviewed the need for personnel to do complete interview-investigation on currently reported early syphilis cases and on those additional cases that are to be expected from comprehensive private physician and serologic reporting programs. Effective interview-investigation requires an additional full-time complement of 125 venereal disease field workers over the number presently employed.

(4) That a comprehensive and dynamic education program be developed for professional workers as well as for the public. The public education effort should be aimed particularly at persons in younger age groups most likely to contract venereal disease and should stimulate cooperation from youth-serving and family-serving agencies, churches, schools, service clubs, etc., and the mass media.

The members of the task force believe that the Public Health Service, in cooperation with State and local health departments, should take the lead in preparing educational materials and in promoting their use among effective organizations and in the mass media.

(5) That research in the immunology of syphilis, in therapy, and in laboratory procedure, be continued and that research in adolescent and young adult sex behavior should be greatly expanded. There is a critical lack of knowledge of the characteristics, attitudes, and habits of the venereal disease-prone population. Behavioral research studies must be undertaken to improve interview-investigation, to guide educational efforts, to pave the way for success in early prevention—in short, to stop the spread of syphilis early when control is least expensive and most effective. Members of the task force were impressed with the excellent sociologic studies done so far on sex behavior among teenagers; but these studies have barely made a beginning in this important area of investigation. A great potential for the elimination of syphillis in the United States lies in the answers to the many, as yet unsolved problems in human sex behavior.

(6) That as the reported infectious syphilis morbidity curve begins to drop (as it surely will when the full impact of the all-out effort described in this report starts to take effect), the Federal, State, and local governments continue unstinted their support of the program. Past experience with premature reduction in budgets has been followed by increases in cases and must be avoided.

As persons with infectious syphilis become fewer in number, the search for them and their sex contacts becomes more difficult and the unit costs of case-finding mount. It is precisely in this period of declining morbidity that programs must be maintained at full strength if we are to reach and maintain control of syphilis in this country.

The provision of needed personnel to visit physicians, follow up laboratory reports, and to intensify interview-investigation will cost $3,500,000 annually over funds presently available. An additional $500,000 should be provided to initiate behavioral studies and to promote education programs essential to the control effort. As effective educational methods are found, more funds may be used effectively to speed up the process of finding untreated cases and their infected sex contacts.

In 1936, Dr. Thomas Parran, Surgeon General of the U.S. Public Health Service, reported the recommendations of a national conference on venereal disease control. Briefly they were: (1) Find, report, and interview for sex contacts every early case of syphilis; (2) mobilize enough money, drugs, and doctors to treat every case regardless of cost; (3) aline health agencies and private physicians in a united front against syphilis and educate them to use scientific, modern methods. Added to these recommendations was the injunction to give citizens the information required for individual and public protection.

THE YEARS BETWEEN

By 1943, three major accomplishments had begun to implement Surgeon General Parran's recommendations: (1) The results of blood testing of the first 3 million selective service candidates gave needed information on the extent of the problem—who, where, and how much; (2) penicillin had been successfully applied to the treatment of syphilis and was being tested for wide usage; (3) a nationwide system of rapid treatment centers (RTC) had been established to curb the spread of syphilis in military camps and to prevent undue absenteeism from war jobs.

By 1947, a peakload of 185,000 persons was admitted to these RTC's throughout the country. This peak of RTC admissions reflected, in large part, the return of service personnel from overseas. Tied in with the testing of returning service personnel had been large scale, selective blood-testing activities in areas where it was believed there were many unknown cases. As the flood of cases of untreated syphilis began to diminish after 1947, cases of early syphilis became harder to find and case finding emerged as a key activity in the syphilis control operation. The interview for sex contacts took on special significance.

The first two of Dr. Parran's recommendations (find and treat) had been applied to the control of syphilis on a national scale and had demonstrated their effectiveness. The recommendations for a united front of agencies and physicians and for effective public education had been attempted in various communities and with varying degrees of success but not in the wholesale manner conceived in the Parran recommendations.

Figure 2 partially documents 20 years of effort to control syphilis. It records control efforts at peak and lowest yield of cases in all stages by rate and by number. If one views it in terms of infectious syphilis only (syphilis that is passed on from person to person), the table may be divided into four segments representing periods in the development of the syphilis control program.

The period 1941–47 (when the number of cases of infectious syphilis reported rose from 68,000 to over 106,000 and when rates per 100,000 population jumped from roughly 52 to 76) might be labeled the period of building the control apparatus. In these years, the first two elements of the Parran formula for control were applied and tested with a remarkable degree of success.

The second period, 1948–53 (when both numbers of cases reported and case rates per 100,000 population were going down steadily), might be labeled the period of orderly decline. Resources available for support of programs at all levels were ample, if not generous, and there was a logical reduction in those elements of program that were least profitable to the control effort. Almost all of the rapid treatment centers were closed during this period.

The third period represented in the table is the period from 1954 to 1957, when the number of cases and rate per 100,000 reported reached their lowest point. These were the years when the syphilis control program began to respond to the forces of disintegration inherent in its dramatic success. The public and many health leaders had become confident that the problem had been solved. It was assumed that State and local government programs would be able to drive syphilis rates further down and maintain them at some irreducible minimum with only token Federal assistance. Supporting them in this process would be widespread knowledge about cheap, easy-to-get penicillin and the program momentum which had been built up since 1942. Consequently, Federal appropriations for venereal disease control dropped from $9.8 million to $3 million in a period of 2 years. (See p. 19.) State support of the program remained at approximately the same level, but it consisted largely of facilities and basic services, as it does today. The Federal Government supported, in large measure, the case-finding apparatus by providing funds for

FIGURE 2

CASES OF SYPHILIS REPORTED TO THE PUBLIC HEALTH SERVICE AND RATES PER 100,000 POPULATION, BY STAGE OF DISEASE

FISCAL YEARS 1941 - 1961

Fiscal Year	Primary and Secondary Cases	Primary and Secondary Rate	Early Latent Cases	Early Latent Rate	Other Syphilis Cases	Other Syphilis Rate	Total All Stages* Cases	Total All Stages* Rate
1941	68,231	51.7	109,018	82.7	220,584	167.3	485,560	368.2
1942	75,312	57.1	116,245	88.1	218,982	165.9	479,601	363.4
1943	82,204	63.8	149,390	116.0	268,122	208.3	575,593	447.0
1944	78,443	61.7	123,038	96.8	216,426	170.2	467,755	367.9
1945	77,007	60.5	101,719	80.0	154,526	121.5	359,114	282.3
1946	94,957	70.9	107,924	80.6	137,354	102.8	363,647	271.7
1947	106,539	75.6	107,767	76.4	134,251	95.3	372,963	264.6
1948	80,528	55.9	97,745	67.9	137,281	95.3	338,141	234.7
1949	54,248	37.1	84,331	57.6	136,226	93.1	288,736	197.3
1950	32,148	21.6	64,786	43.5	125,870	84.6	229,723	154.3
1951	18,211	12.1	52,309	34.7	119,969	79.6	198,640	131.8
1952	11,991	7.9	38,365	25.2	111,160	73.0	168,734	110.8
1953	9,551	6.2	32,287	20.8	108,216	69.9	156,099	100.8
1954	7,688	4.9	24,999	15.9	100,835	64.0	137,876	87.5
1955	6,516	4.1	21,553	13.4	90,256	56.2	122,075	76.0
1956	6,757	4.2	20,014	12.3	95,386	58.9	126,219	77.9
1957	6,251	3.8	19,046	11.4	102,308	61.4	130,552	78.3
1958	6,661	3.9	16,698	9.8	90,813	53.3	116,630	68.5
1959	8,178	4.7	17,592	10.1	91,991	53.1	119,981	69.3
1960	12,471	7.1	16,829	9.5	88,788	50.2	120,249	68.0
1961	18,781	10.4	19,146	10.7	87,335	48.6	125,262	69.7

* Includes stage not stated.

case-finding activities. At the request of States and communities, trained investigators were also assigned for specified periods of time to assist in case-finding efforts.

Gradually it became apparent that the syphilis problem had not been solved and, in the period 1958 to present, there was a modest increase in the Federal support of the control apparatus. This may be called the period of retooling to tackle the unfinished business in syphilis control. By now it was clear that stopping the spread of syphilis was not possible without the private physician. He was probably treating more cases than were public clinics, and he was reporting to health authorities only about one-fourth of the patients he treated. Many physicians were excellent interviewers; but few had the time to interview, and none had the time to investigate for contacts. There had been increased concern for, and experimentation in, techniques of interviewing. There had been pilot studies in the areas of sex behavior, particularly among teenagers; and the need for an educational effort transcending mere public appeal had been demonstrated.

FIGURE 3.—*Epidemiologic indices, primary and secondary cases, United States*

	1953	Average, 1955–57	Average, 1958–60	1961
Contact index	2.79	3.36	3.59	3.72
Percent examined	73.6	75.6	80.1	82.8
Epidemiologic index	.62	.85	.93	1.09
Lesion-to-lesion index	.20	.27	.27	.30

OF SUCCESS AND FAILURE

Epidemiology

There are measures, both of epidemiologic effectiveness and failure. On the whole, the years 1953–61 show consistent progress in the interview-investigation process in the syphilis control programs of State and local health departments (fig. 3).

In 1953, the average number of sex contacts named to the interviewer by an infected patient was 2.79 per interview. The average for the period 1955 to 1957 was 3.36, and the average for the period 1958 to 1960 was 3.59, with 3.70 as an average in 1961. Similarly, the percent of contacts named that are located and brought to medical examination (epidemiologic index) has increased from 73.6 to 82.8 over the 1953–61 period. The average number of syphilis infections among the sex contacts named per infected patient (brought-to-treatment index) has risen from 0.62 to 1.09. The average number of persons with primary or secondary lesions whose sex contacts are brought to treatment with infectious syphilis (lesion-to-lesion index) has increased from 0.20 to 0.30.

Since these indices are based upon actual interviews. they reflect largely work with clinic patients. The indices mean, of course, progress in interviewing and investigation, but they also show that progress still is required.

There is at least one infectious or recently infectious case of syphilis among the sex contacts of each patient with early infectious syphilis. At the present time, two out of every three infectious syphilis patients intreviewed yield at least one contact with infectious syphilis. This is dramatic proof that progress has been made in interview investigation, and it strongly suggests that, with improved and expanded case-finding effort, breaking the remaining chains of infection is a practical possibility.

Recent developments—successful

The task force reviewed program efforts to improve interview-investigation techniques and were impressed with the results of field studies. Recently, experiments have been made in interview-investigation procedures that give promise of still further gains. Of especial significance, because it permits further realization of already successful results of investigation, is the reinterview of infected patients. It has always been known that a second interview frequently produces contacts not named during the first interview. The question was: Would reinterview produce enough additional cases to justify it as general procedure? An evaluation of reinterview of patients with primary and secondary syphilis in Georgia shows that of 603 clinic patients, 271 named additional contacts during reinterview. Of 248 patients of private physicians, 92 named additional contacts during reinterview. Of the entire group of 851, a total of 363, or 43 percent, named additional contacts on reinterview. Of the 271 clinic patients naming additional contacts, 56, or 21 percent, named persons who were likewise infected with primary or secondary syphilis. Of the 92 private physician patients naming additional contacts, 17, or nearly 19 percent, named persons who were likewise infected with primary or secondary syphilis. As a result of these findings, all areas must take appropriate steps to assure the reinterview of all reported cases as many times as are necessary to determine all source-and-spread cases.

Cluster testing

Another departure from conventional epidemiologic process is the extension of interview to include not only sex contacts of patients, but other who the patient thinks might benefit by an examination for syphilis. It includes friends and acquaintances whose sexual behavior is assumed to approximate roughly that of the patient. This is called cluster testing. Between July 1960 and March 1961, cluster testing was evaluated in the interview of 5,452 persons with primary and secondary syphilis. There were 2,047 persons with primary and secondary syphilis found among the contacts named by these individuals. In addition, there were 487 persons with primary and secondary syphilis found among the cluster suspects—individuals without sexual linkage to the patients but who were thought might profit by an examination for syphilis. This added 24 percent to the yield of infectious syphilis cases. More and more health departments are using this new process. In 1961, it was applied to about 43 percent of all infectious cases interviewed, compared to about 30 percent in 1959. In view of the productivity of this technique, health departments are slow to take it up. All health departments should apply cluster testing around each reported case.

FIGURE 4.—*Results of extending epidemiologic process to include cluster testing, United States July 1960–March 1961*

Primary and secondary cases interviewed	Additional primary and secondary cases found by—		
	Contact tracing alone	Contact tracing with cluster testing	Percent increase in infections found
5,452	2,047	2,534	23.8

Interview of persons with early latent syphilis

There is also the recognition that persons with early latent (potentially infectious) syphilis, although they may not themselves be infectious, may lead the investigator to infectious syphilis chains which have not yet been broken. Approximately 1 out of every 12 early latent cases interviewed leads to a person whose syphilis is infectious. Consequently, increased emphasis is being given to extending the epidemiologic process to include interview of early latent cases, and the percent interviewed of those reported has increased from 41 in 1959 to 52 in 1961. Again, the inadequacies of the present venereal disease control effort are apparent. Fifty percent epidemiologic efficiency will never eliminate syphilis.

The other side of the coin—Epidemiologic failure

In order to view the epidemiologic process from as many angles as possible, the Public Health Service established in 1959 a report on epidemiologic success or failure. Epidemiologic success was defined as locating, by means of interview-investigation, a person spreading syphilis or known to be the source of its spread. Failure had four components: failure to interview reported cases, failure to obtain contacts from interviewed cases, failure to locate and examine any named contacts, and failure to identify spread or possible source cases from contacts located and examined. In the period July to December 1959, an epidemiologic processing of 4,873 cases produced 2,544 failures, or

52 percent (fig. 5). Clinics and private physicians had treated about the same number of persons failing to yield an infected source or spread contact.

As a result of this analysis, the interview-investigation process was tightened up, and in the period January to June 1960, the success-failure formula, applied to 6,450 patients, produced a reversal of the score. This time, 44 percent were failures, and 56 percent were successes. This trend was continued in the period July to December 1960. The gap between success and failure widened even further. Among 8,645 patients, 63 percent were considered successes and 37 percent failures. In the January to March 1961 period, approximately the same relationship holds: 65 percent success and 35 percent failures. This means that, even after considerable improvement of syphilis epidemiology, 35 percent of persons with infectious syphilis fail to produce a contact with early syphilis. The task force believes this margin of failure is a measure of inadequate resources and that properly staffed venereal disease control programs will eliminate it for all practical purposes.

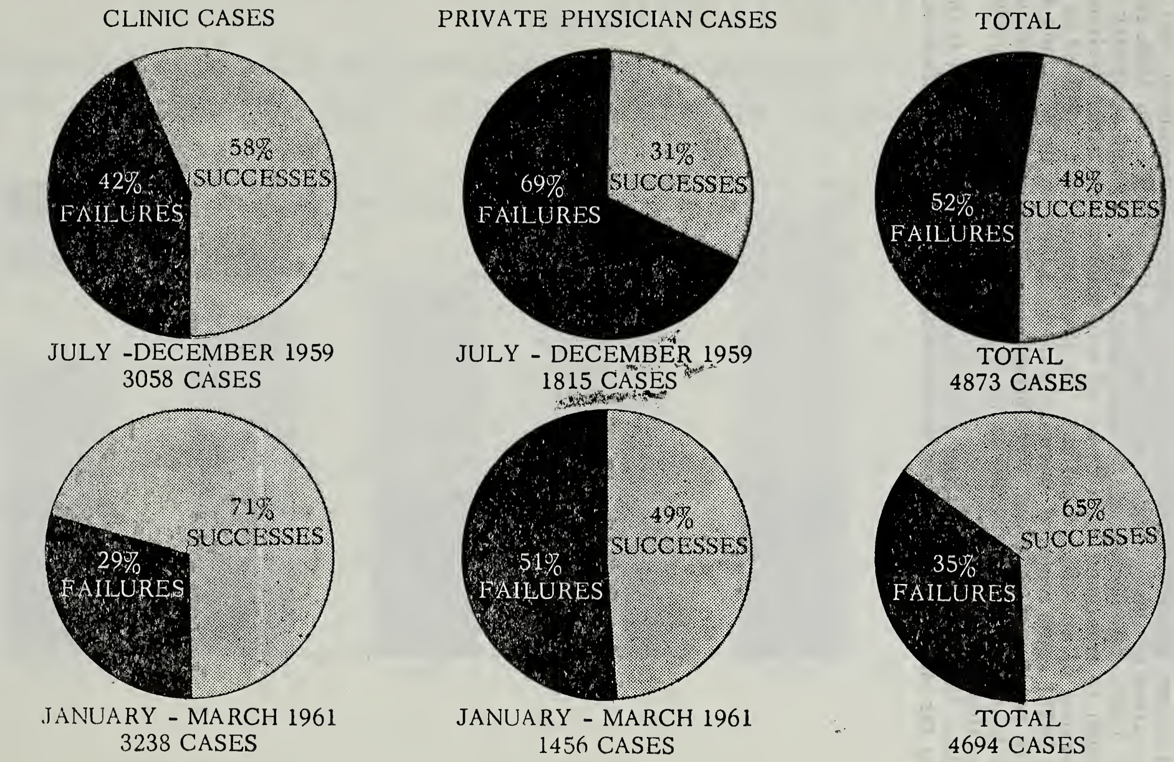
Reasons for failure

Members of the task force believe at least three major reasons exist for the epidemiologic failure rates remaining at current levels. The first concerns the processing of positive test reports through public hospitals. Frequently the patient in the hospital has been treated for whatever brought him there and released before the blood test report is received in the health department. If the blood test was positive, the investigators are subsequently unable, or find it time consuming and difficult, to locate the patient at his listed address in time to prevent his spreading infection.

A second reason for failure is that private physicians often refuse to permit health department personnel to interview their patients. A recent study of epidemiologic failures with the patients of private physicians indicates that the number of physicians who refuse to permit interview of their patients may account for as much as one-fourth of the epidemiologic failures among privately reported syphilis patients.

Figure 5

IMPROVEMENT IN EPIDEMIOLOGY OF PRIMARY AND SECONDARY SYPHILIS



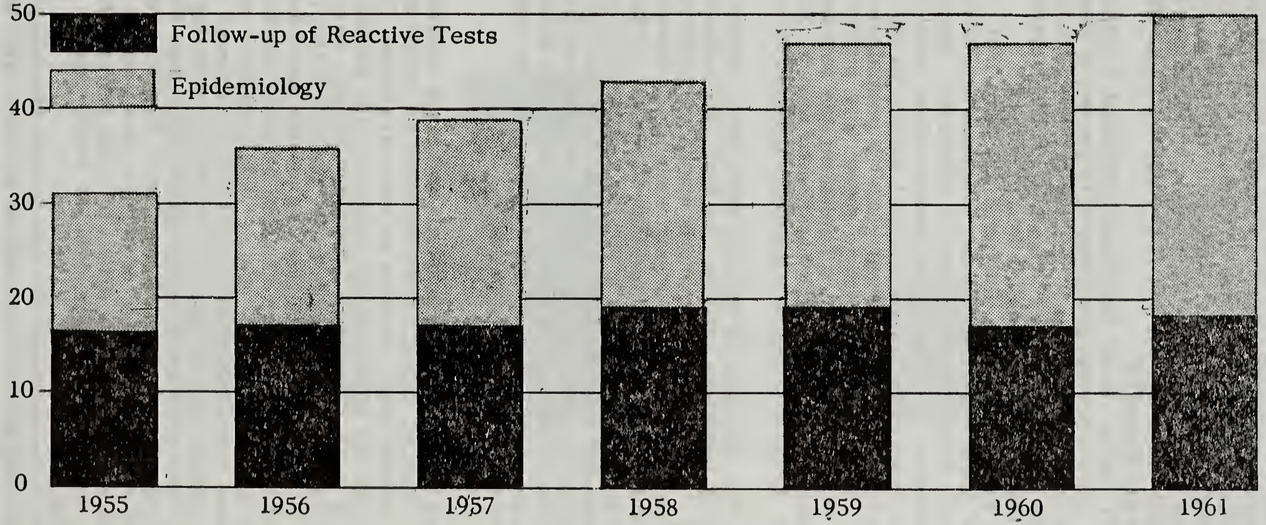
The third reason for epidemiologic failures is that the patient gives a false name or a false address. This is most particularly true among private physicians' patients; and followup activity, after the physician has given permission to interview, often fails to locate the reported case.

In the main, however, there has been improvement in all areas of the epidemiologic process. The result has been a significant increase in the number of primary and secondary syphilis cases brought to treatment, and a resulting prevention of the spread of syphilis from these cases. In 1955, for example, only 1,003, or 15 percent of the total reported primary and secondary cases, were brought to treatment as a result of epidemiologic activities deriving from the interview of an infected patient. In 1961, by contrast, 5,945, or 32 percent of the 18,781 cases reported, were so located. Likewise, in 1955, only 1,016 cases, or 16 percent of the total, were brought to treatment as a result of serologic test followup. In 1961, 3,359 cases or 18 percent of the total reported, resulted from this activity.

Case finding is difficult, time consuming, and expensive, but it is the only way thus far successfully demonstrated to break the chains of infection.

Figure 6

PERCENTAGE OF PRIMARY AND SECONDARY SYPHILIS CASES REPORTED IN THE UNITED STATES WHICH ARE FOUND AS A RESULT OF EPIDEMIOLOGY OR THE FOLLOW-UP OF REACTIVE TESTS



Routine screening procedure

From a survey of States in the spring of 1961, it is estimated that there are approximately 31 million serologic tests for syphilis performed annually in the United States. Allowing for repeat tests, this means that 9 to 10 percent of the population of the United States is screened for syphilis each year. In premarital examinations, some 3 million are screened for syphilis infection, and in prenatal examinations, some 4 million. These two tests sample largely the younger population group. Approximately 50 percent of the males getting married for the first time are under age 22, and 75 percent are under age 25. Comparable ages for females are 20 and 22.

Of the 31 million blood specimens processed annually, some 1,200,000 react positively. At the present time, about 70 percent of these are reported to health authorities for followup action. These referrals are limited largely to health departments and large charity hospitals, but they represent an increase of about 50 percent over those available for followup in 1958.

In New York City alone, during fiscal year 1961, the health department's followup of blood tests made in city hospitals produced 218 persons with infectious syphilis previously unknown to treatment. Recognizing the case finding potential inherent in followup of positive blood tests from routine premarital, prenatal, preemployment, and hospital admission testing, several States and cities have taken action in recent years to promulgate laws or regulations requiring all laboratory directors to report any positive findings to health authorities. Others have begun to implement the authority already contained in their regulations to require laboratories to report. Still other States, lacking regulations, have encouraged laboratory directors to report their findings voluntarily.

In 1958, the followup of positive tests from routine screening yielded 1,252 cases of early infectious syphilis. In 1961, this same routine screening yielded 3,359 cases. Laboratory reporting is one of the important keys to effective case finding. The usefulness of a strong, compulsory reporting requirement is clear. Many laboratory directors have taken the position that without a requirement in the health code, any reporting they do is a breach of medical ethics. Although real progress has been made in increasing the number of blood tests routinely reported by laboratories, there still are an estimated 350,000 positive blood tests processed yearly that are not reported to the health department. If such a source of intelligence about occurring cases continues to go untapped, health authorities will never stop the spread of syphilis.

Reporting

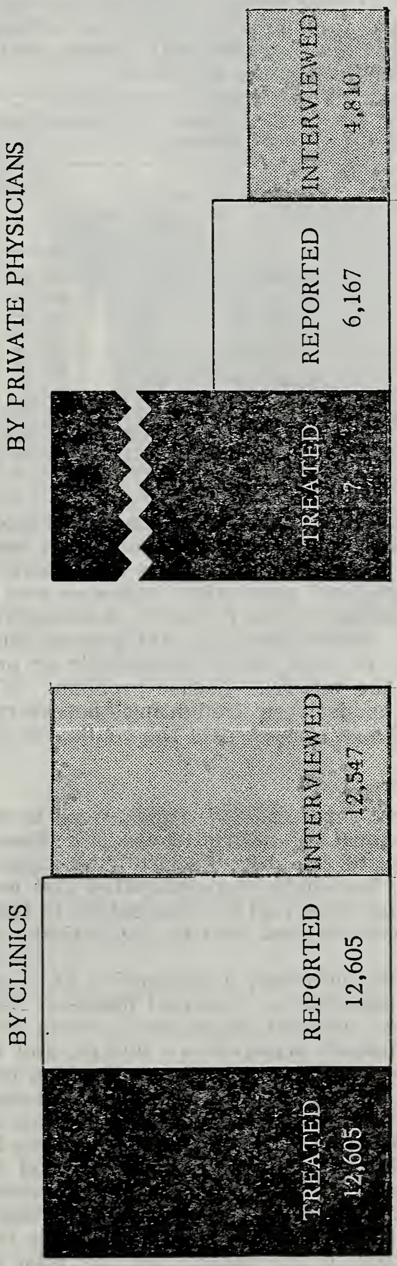
In the era of treatment in hospitals and rapid treatment centers, the majority of known cases of syphilis were referred to health authorities for treatment and such epidemiologic services as were available. Little attempt was made to provide special epidemiologic service to the private physician. It was assumed—and with some logic—that inexpensive, easy-to-get penicillin would eliminate the hazard of syphilis to the public's health in a very short time, and that both clinic patients and those of private physicians would secure the advantages of the miracle drug. As late as 1955, although private physicians reported almost 3,000 primary and secondary syphilis cases, fewer than 10 percent of these were interviewed by trained venereal disease control workers. Venereal disease control personnel were concentrating their energies on clinic cases and their contacts since this large group was the known priority target. Many of the privately treated cases were free to spread their infection. The leveling off of reported cases of syphilis, however, in the 1955–58 period suggested that without positive action to bring private physicians into the control effort as responsible partners, syphilis would remain a serious hazard to the health of the public.

Seminars were organized for the private physicians, giving them an opportunity to discuss syphilis management problems with specialists in the field and to update their knowledge of the State and local venereal disease control programs; a program of checking on laboratory reports and following through to get infected persons to treatment was instituted and reported in the various seminars; attempts were made to call on physicians in areas having sufficient personnel resources to permit personal visits; and physicians were given material on the treatment, diagnosis, and management of syphilis.

Even though these efforts were meager in terms of the total problem, they produced positive results. In the period 1959–61, the number of physicians who reported primary or secondary syphilis to the health departments increased by 60 percent to a total of 3,500 physicians reporting 1 or more cases. At present, it is estimated that physicians are reporting slightly more than one-half of the cases they diagnose and treat compared to about 25 percent in the period 1955–58. Physicians are required by law, in all States, to report their cases. That they do not can in part be attributed to the failure of health authorities to impress upon them the importance of so doing.

FIGURE 7

INFECTIOUS SYPHILIS DIAGNOSED IN 1961



EVERY 100 CASES INTERVIEWED YIELDED 109 ADDITIONAL INFECTIONS

Programs—Local, State, Federal

In venereal disease control, as in other public health programs, the role of the Federal Government has been to assist State and local areas financially and with technical skills. In recent years, a pattern has become established. State and local funds are used primarily to provide the basic physical and service framework for venereal disease control, such as diagnostic and treatment services, including laboratories. In the main, Federal funds support case finding activities. These funds are made available through cash grants directed at specific problems that are considered by State or local health officers to be beyond local resources and through the assignment of trained and experienced venereal disease control workers for specified periods of time.

For the past 2 years, Federal support to local programs has been concentrated in finding and treating infectious syphilis to the extent possible with currently available resources. Other control activities have had to be curtailed to provide the needed manpower to handle the increasing infectious syphilis caseload.

Per capita expenditures for venereal disease control activities by source of funds from 1950 through 1961 are as follows:

Year	State and local expenditures		Federal expenditures		Total	
	Dollars	Dollars per capita	Dollars	Dollars per capita	Dollars	Dollars per capita
1950	$13,797,102	$0.09	$16,000,000	$0.11	$29,797,102	$0.20
1951	14,290,000	.09	12,863,500	.09	27,153,500	.18
1952	15,284,160	.10	11,653,360	.08	26,937,520	.18
1953	14,521,703	.09	9,800,000	.06	24,321,703	.16
1954	13,426,593	.09	5,000,000	.03	18,426,593	.12
1955	14,063,705	.09	3,000,000	.02	17,063,705	.11
1956	14,015,297	.09	3,626,000	.02	17,641,297	.11
1957	14,436,172	.09	4,195,000	.03	18,631,172	.11
1958	13,530,099	.08	4,415,000	.03	17,945,099	.11
1959	14,578,513	.08	5,400,000	.03	19,978,513	.12
1960	13,968,974	.08	5,400,000	.03	19,368,974	.11
1961	14,600,000	.08	5,814,500	.03	20,414,500	.12

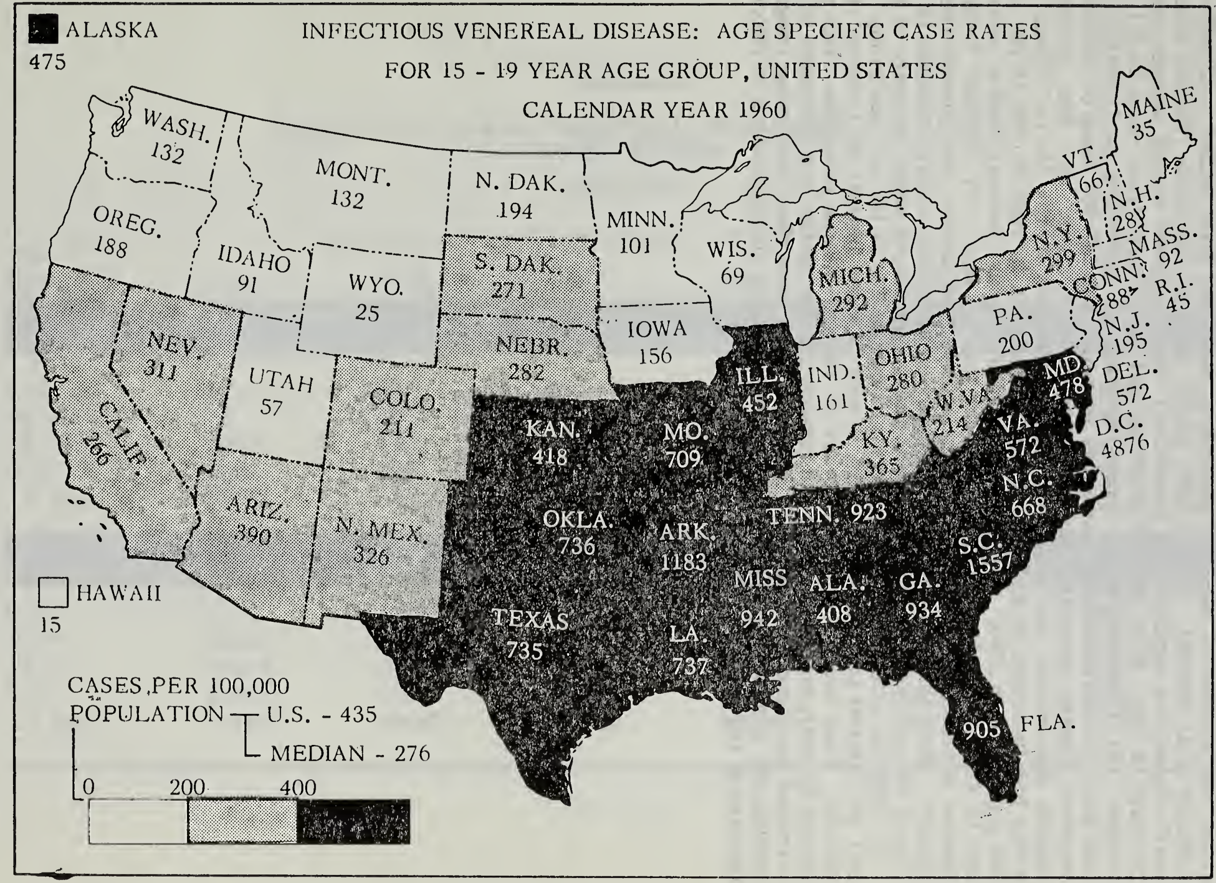
On examining the trend of veneral disease control expenditures during the past decade, it will be noted that on a per capita basis the modest increases in Federal funds for venereal disease from 1957 onward have not been sufficient to offset rising costs and population increases and have remained at a dead level of 3 cents per capita for 5 years. Administration of support, however, through the highly flexible project-grant process has permitted shift of funds to pinpointed areas of need, either geographic or program, as dictated by the shifting nature of the venereal disease problem. Without adequate resources, however, this shifting is mere firefighting—necessary under the circumstances, but unable to eliminate permanently the conflagration potential throughout the country.

Education and prevention

In the years 1946 through 1952, funds were made available to States and communities for "education" efforts in venereal disease control. The net result was the development of a highly effective public appeal designed to support the casefinding effort. Materials were prepared for use by press and radio, in clinics and health agencies, and to some extent in the schools. Young people in those years had been exposed also to the military venereal disease education program.

In the last decade, however, a generation of young people has come along almost completely ignorant of venereal disease. The task force is aware of their needs and has reviewed educational efforts directed to them. Although funds have been limited primarily to finding and treating cases of syphilis, attempts have been made to explore the education possibilities. Some of these efforts have been: (1) a program in Ohio to demonstrate the possibility of incorporating venereal disease educational materials into the school curriculum; (2) support for a film produced by the Kansas State Health Department for use with school-age children to convey knowledge and understanding of syphilis; (3) sociological study of the teenage clinic population in New York City to determine some of the characteristics of the venereal disease-prone youth; (4) a pilot program in Philadelphia to ascertain the rehabilitation potential of teenagers admitted to the clinic; and (5) pilot studies in teenage sex behavior to help understand the teenager and his relationship to the world he lives in.

FIGURE 8



INFECTIOUS VENEREAL DISEASE: AGE SPECIFIC CASE RATES
FOR 15 - 19 YEAR AGE GROUP, UNITED STATES
CALENDAR YEAR 1960

Recent increases (since 1956) among people under 20 (fig. 9) indicate to members of the task force that the success of these education efforts at prevention has not been striking: (1) Reported early infectious syphilis among the 15- to 19-year age group rose from 1,093 cases in 1956 to 2,577 cases in 1960, an increase of 136 percent. For the same period, and among the same age group, the number of reported gonorrhea cases rose from 44,264 to 53,649—an increase of 21 percent. (2) In 1960, 61,265 cases of infectious venereal disease (early infectious syphilis and gonorrhea) were reported among persons under 20 years of age. This represents 22 percent of the infectious cases in all age groups. (3) Considering the under-reporting of gonorrhea particularly, the task force is convinced that there may be more than 200,000 cases of infectious venereal disease occurring among teenagers every year. (4) The infectious syphilis age-specific rate reported among teenagers in the 15- to 19-year age group has increased from 10 per 100,000 population in 1956 to over 19 per 100,000 population in 1960. (5) More cases of infectious venereal disease occur at age 18 among females than at any other year of age. (6) Teenage venereal disease is associated with sexual promiscuity, illegitimacy, and juvenile delinquency. More than 50 percent of all reported infectious venereal disease in the United States occurs among teenagers and young adults under 25 years of age.

In 1956 the infectious syphilis rate among the 15- to 19-year age group was 10.1 per 100,000 population; in 1960, it was 19.4 per 100,000, an increase of 92 percent. That less is being done today in veneral disease education, than was during the war, suggests some of the reasons for the apathy and ignorance which surround the venereal diseases. The task force feels that continuing progress toward the elimination of syphilis demands a major intensification of effort in the area of venereal disease education.

FIGURE 9

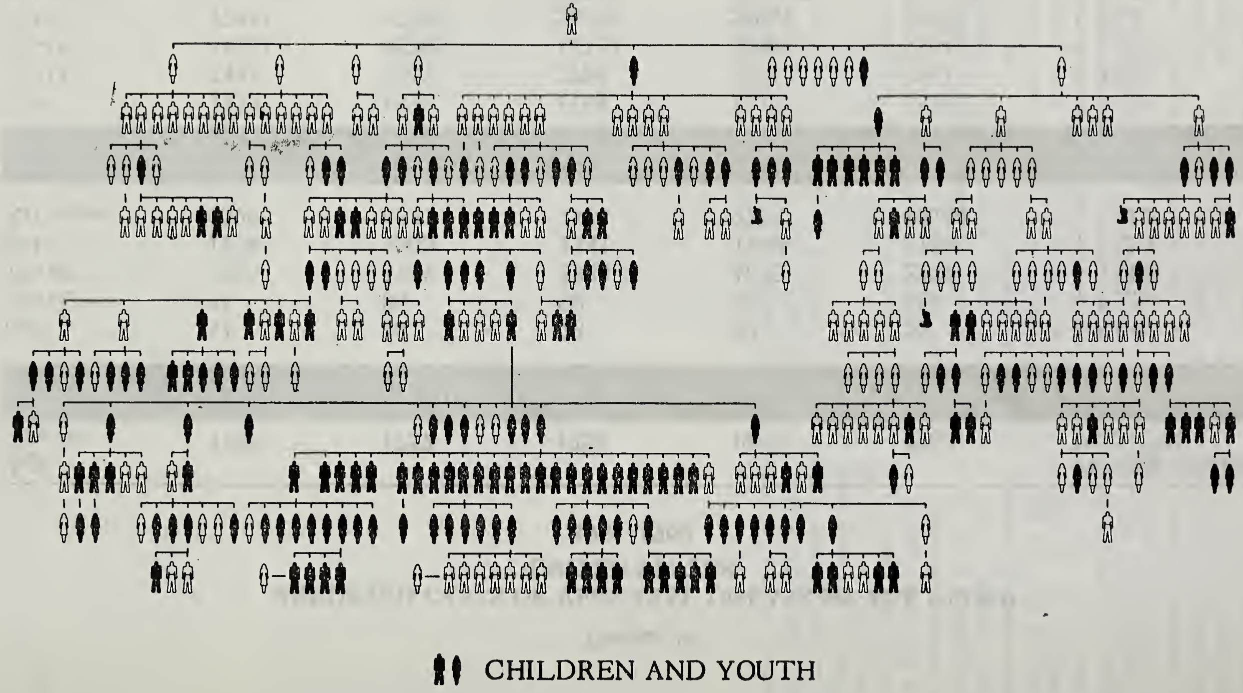
REPORTED CASES OF VENEREAL DISEASE BY AGE GROUP UNITED STATES

1956-1960

Age Groups	1956	1957	1958	1959	1960	Percent Increase 1956-1960
PRIMARY AND SECONDARY SYPHILIS						
0-9	11	33	23	39	20	+ 81.8
10-14	75	80	90	90	139	+ 85.3
15-19	1093	1192	1228	1620	2577	+ 135.8
0-19	1179	1305	1341	1749	2736	+ 132.1
All Ages	6399	6581	7134	9798	16144	+ 152.3
GONORRHEA						
0-9	1222	1628	1164	1325	1619	+ 32.5
10-14	2425	2363	2706	2601	3261	+ 34.5
15-19	44264	43705	48723	50088	53649	+ 21.2
0-19	47911	47696	52593	54014	58529	+ 22.2
All Ages	224687	214872	232818	240265	258933	+ 15.2

Figure 10

PERSONS UNDER AGE 20 INVOLVED IN A TYPICAL SYPHILIS EPIDEMIC



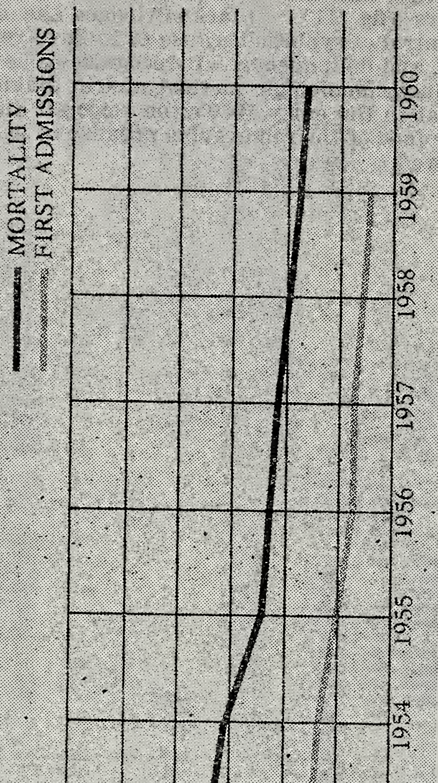
DISCUSSION AND CONCLUSIONS

The task force notes, and is impressed by, the very real progress made by States, communities, and the Federal Government in the control of syphilis in the past 20 years (fig. 11). It acknowledges the difficulties inherent in the epidemiologic control of syphilis because of its involvement in depth with morals, sex, prostitution, and delinquency. It recognizes also the startling progress that has been made in epidemiologic method and in diagnosis and treatment. It is not surprised that in the early 1950's the venereal disease program lost support and status in the face of the remarkable promise of penicillin and the widespread publicity it received.

FIGURE 11

MORTALITY DUE TO SYPHILIS AND FIRST ADMISSIONS TO MENTAL INSTITUTIONS DUE TO SYPHILIS

RATE PER 100,000 POPULATION — UNITED STATES, 1949-1959



More syphilis occurring

The task force believes there has been for some time a true increase in the occurrence of syphilis. The basis for this position rests in the following facts: Reported increases in the United States are general. The American Social Health Association reported in March 1961 that 33 States and 63 major cities reported increases in primary and secondary syphilis; whereas, only 9 States and 12 major cities reported decreases. In many of the health departments that reported rising rates, there has been no substantial change, either in method of control or in intensity of the control effort.

Although it is conceded that the rising rates depend on other factors than rate of occurrence, health officers in 24 States indicated their belief that an actual increase in the occurrence of syphilis is a major factor in the rising rates. Forty-eight cities agreed. Other factors mentioned by States and cities included more complete reporting and improved casefinding.

In addition, there is the constant importation of syphilis from abroad. Data at hand in the American Social Health Association indicate that during 1960 Americans with syphilis, when interviewed for sex contacts, named individuals in 52 foreign countries.

These facts, along with data indicating a higher rate of illegitimacy and a more casual attitude toward sex, particularly among young people in the United States, incline the task force to believe that rising rates of reported syphilis represent, among other things, increased rates of occurrence.

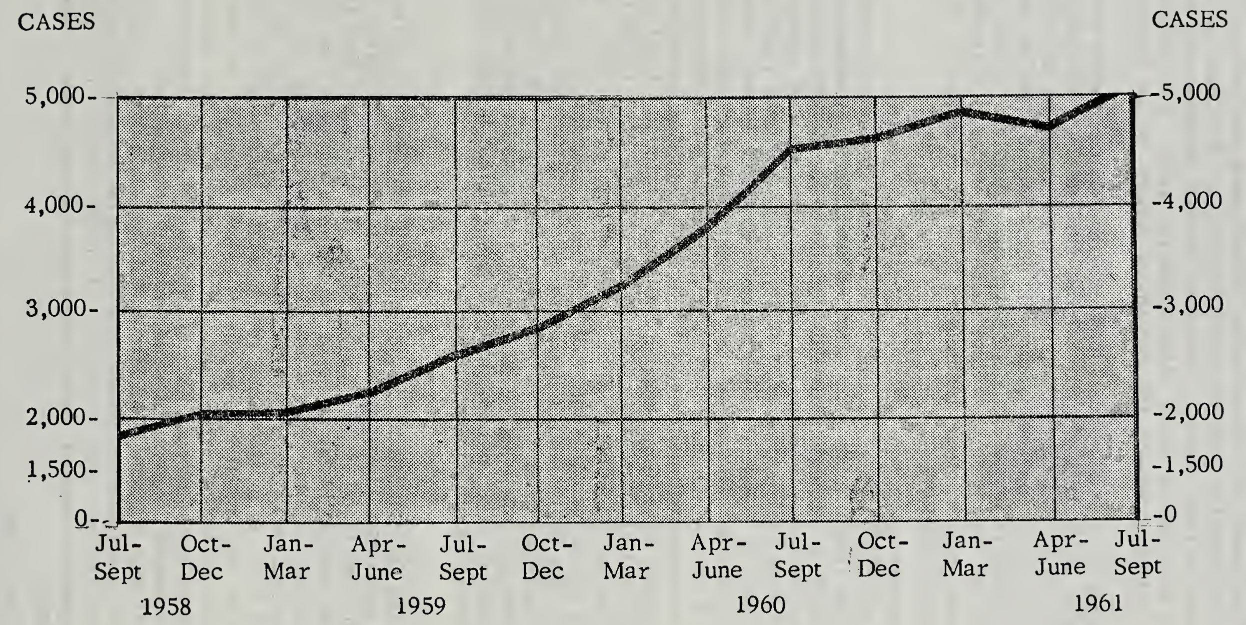
FIGURE 12

CASES OF PRIMARY AND SECONDARY SYPHILIS REPORTED TO THE PUBLIC HEALTH SERVICE AND PERCENT CHANGE FROM PRECEDING QUARTER

QUARTER	NUMBER OF CASES	PERCENT CHANGE
July-September 1958	1842	+ 12.4
October-December 1958	2025	+ 9.9
January-March 1959	2091	+ 3.3
April-June 1959	2220	+ 6.2
July-September 1959	2618	+ 17.9
October-December 1959	2859	+ 9.2
January-March 1960	3237	+ 13.2
April-June 1960	3757	+ 16.1
July-September 1960	4507	+ 20.0
October-December 1960	4644	+ 3.0
January-March 1961	4869	+ 4.9
April-June 1961	4761	− 2.2
July-September 1961	5052	+ 6.1

FIGURE 12—Continued

CASES OF PRIMARY AND SECONDARY SYPHILIS REPORTED TO THE PUBLIC HEALTH SERVICE BY QUARTER -- JULY 1, 1958 THROUGH SEPTEMBER 30, 1961, UNITED STATES



Margin of failure

It is clear from the success of cluster testing, reinterview, and interview of patients with early latent syphilis that there is a vast number of unknown persons in the population with infectious syphilis—unknown to the health department, and for the most part, unsuspecting of their own condition. If present estimates are correct (and the task force has no reason to feel that they are not), syphilis is occurring in this country at a rate of at least 60,000 cases per year. It is being reported at a rate of about 19,000 cases per year. That difference—from 19,000 cases to 60,000 cases—is the margin of failure in the venereal disease control effort.

The task force believes that any program that attempts to control the spread of syphilis must rely heavily on the epidemiologic techniques developed and tested to date. It believes that the progress made in interviewing and reinterviewing, in exploring the contacts of early latent syphilis, and in pursuing the cluster testing techniques is impressive and effective. And it believes that while this program has been slow and these techniques are expensive, they are the only known epidemiologic techniques that are consistently effective in breaking the chains of infection.

Laboratories

The task force notes two major weaknesses in the epidemiologic program thus far: First, that a large proportion of laboratories, particularly private, do not report reactive serologic tests for syphilis to the health departments. This, the task force believes, must be corrected if the spread of syphilis is to be stopped in the United States. In some States there are laws requiring laboratories to report; and in others existing procedures, if followed, would achieve a high rate of reporting. In view of the fact that laboratory reporting varies so widely, the task force recommends that the Public Health Service give serious consideration to the preparation of model State laws requiring laboratories to report positive serologic tests for syphilis, and that State and local health departments undertake to introduce these laws to the various State legislatures and to set up procedures for implementing the requirements of the law. It is believed that licensing of laboratories and establishing of standards for performance should rest with the State health departments. It is further recommended that the present training program in laboratory techniques be continued and extended to increase the efficiency of laboratory performance generally. Health departments have in their hands, through basic public health laws, all of the legal authority to make this program work.

Hospitals

The task force notes with some concern that the Committee on Accreditation of the American Hospital Association no longer requires as an accrediting factor routine blood testing for syphilis. It also notes that in cases where hospitals do routine blood tests on admissions, patients are often released from the hospital without reports of blood tests reaching the health department. Results of examination for other communicable diseases share, to some extent, the same fate. It is, therefore, recommended that hospitals consider the employment of an individual who might be called a general epidemiologist to assume the responsibility of surveillance of records of all the communicable diseases, so that a great many patients now lost to treatment, because the reports do not reach the health department, would be found and treated.

Even though the American Hospital Association does not require routine blood-testing for accreditation, about 37 percent of patients admitted to private hospitals are given serologic tests routinely. A public hospital does more routine testing than a private hospital, and follow-up of these public hospital cases is very important.

Routine screening

Obviously, if we are to gain control of syphilis, now is not the time to discontinue any routine screening program. Premarital and prenatal testing, along with preemployment blood-testing, should be continued both as case-finding devices, surveillance functions, and as opportunities for education of parents, prospective married couples, and employees, to prevent syphilis infection and its spread.

Interviewing

The task force feels that although substantial progress has been made in interview techniques the Public Health Service should study interview methods and should encourage States to examine and experiment with them in order to improve interviewing techniques and increase the number of infected contacts brought to examination per person interviewed.

Reporting

The task force believes that reporting is a two-way street. Not only should physicians be encouraged to report to the health department, but the health department should be encouraged to report back to physicians on the results of casefinding. By the same token, private laboratory directors should be advised by health departments as to the results of reporting positive blood tests. This technique of reporting back to physicians and laboratory directors should be evaluated, and the Federal Government should take the lead in supporting such evaluation.

It is believed that even though some progress has been made in several States in working with the private physicians, many doctors are still doing little more than treating the case. The physician's role in syphilis control must be enlarged; and in the enlarged role, the physician must have the support of the medical and public health professional organization structure. It is believed that any program for extended private physician participation should be aimed at increasing his responsibility in the control effort. It is urged that physician participation be developed with the support and active interest of the American Academy of General Pracice, the American Medical Association, the American Hospital Association, and such other professional societies as would lend support and prestige to the undertaking.

Federal, State, community relationships

The task force notes that the operating relationship of the Federal Government with State and local programs is effective. States and communities provide the basic service structure for venereal disease control. In describing their needs and proposing project action in VD trouble spots, State and local health departments assume the initiative and ultimate responsibility for administering and directing the program In providing funds and trained personnel to meet these requests, and in coordinating services among the State and local programs, the Federal Government discharges its responsibility.

Visits to private physicians

The attempt to help the private physician assume his responsibility in the control effort must be pursued with energy and promotional determination. It is recommended that the program provide for a least two visits per year to 100,000 general practitioners and one visit per year to the remaining 130,000 physicians. A continuing assessment of these visits should be maintained until the core group of physicians that treat venereal disease is discovered. Careful and efficient service to this core group should then be continued until there is no longer evidence that syphilis is being spread in the population.

Education

The task force believes that VD program planners should carefully consider the entire area of education—public and professional. The VD education effort should apply all the information and skills it can muster to stop the spread of venereal disease, support the casefinding effort, and to protect gains made thus far.

These efforts should be related to education in family life and living. Such education is not extraneous to the goals and needs of the American people in this latter part of the 20th century. The task force believes that the production of new drugs, the learning of new skills in the management of syphilis, new casefinding techniques, and other technical developments do not alone satisfy the basic requirement for preventing the occurrence of syphilis. These program developments must be supported by an educational effort designed to influence the behavior of people, particularly teenagers and young adults, to make choices which preclude the possibility of infection.

Educational materials

The task force recommends that Public Health Service and State and local health departments take the lead in preparing material for use by youth-serving agencies, churches, and schools in their areas, and that they provide personal service in the promotion of the use of these materials. It is also suggested that the publishers of school books be approached with suggestions for material to be included, and that the National Educational Association and its member organizations be encouraged to consider available materials and their incorporation into school texts. There is a great deal of helpful information availabel for incorporation into school books and teaching curricula. Nowhere is the lag between knowledge and its application more vividly demonstrated than in the area of venereal disease education and sex education generally.

In developing the education program, the task force advises that health departments explore the subject of school dropouts, beginning with children in the seventh and eighth grades, to determine to what extent this group requires special education.

The education effort should be set up with both short- and long-range goals to permit a continuous evaluation process. The task force is confident that the information, skills, and administrative knowledge we now have are adequate to support such a program.

PROGRAM FOR ELIMINATION OF SYPHILIS IN THE UNITED STATES

The task force believes that the elimination of syphilis as a public health hazard in the United States requires an intensive and aggressive program based in two general areas of activity.

Area 1: Epidemiology.—The present effort to find and treat must be strengthened. This will require increasing the available investigative manpower and the amount of funds necessary to keep that manpower operating at peak efficiency. It will mean increasing the number of personal visits to private physicians and laboratories, increasing epidemiologic services to privately treated cases of infectious syphilis, increasing reinterviewing of both clinic and private patients for sex contacts, extending cluster testing to all infectious syphilis cases, and intensifying efforts to interview all early latent syphilis cases for sex contacts.

The next result of this activity will be:

(*a*) To raise the level of syphilis case reporting by private physicians substantially above the present level of 50 percent. At least 4,600 persons treated for infectious syphilis are not interviewed for sex contacts each year because their physicians do not report them.

(*b*) To make available for health department action reports of the more than 350,000 positive blood tests that are now receiving no attention because of lack of laboratory followup. Included in this group are an estimated 3,500 persons with infectious syphilis.

(*c*) To bring to treatment a substantial part of the 2,300 persons with infectious syphilis that are known to have been missed in 1961 through failure to interview and reinterview all cases (including early latent), as well as their acquaintances and associates.

Area 2: Education.—The education effort divides logically into two parts:

(*a*) Education of professionals, directly or indirectly involved in the control program, and

(*b*) Education of the public and its leaders.

There must be an intensified effort to reach professional personnel including physicians, nurses, teachers, social workers, ministers, and youth and family-serving agency personnel. This effort will rely heavily on extended use of seminars, conferences, workshops, and training courses developed by health departments, universities, colleges, schools, voluntary agencies, and churches.

To implement the professional education program, there must be developed teaching aids: filmstrips, movies, exhibits, manuals, and an assortment of other literature at professional levels. This calls for extension of the work the Federal Public Health Service is now doing, together with increased responsibility and activity by State and local health departments. Involvement of the schools will require strong leadership, and local parents, teachers, and health officials must take the initiative to provide educational resources and support for local educational institutions.

The second part of the educational effort must concern itself with the public. It will require energetic use of the mass media. Its character and function will be promotional, and it will require the support of high-level leadership, both national and local. It will require a staff of qualified experts in media presentation.

The task force believes that if personnel can be secured and developed to the required level by 1963, and if a comprehensive, dynamic, promotional education program is developed, the epidemic spread of syphilis in this country can be stopped within 10 years.

The task force believes that present research should be continued and, where results are promising, expanded. It is particularly impressed with the need for further research in the area of human sex behavior. Efforts by the American Social Health Association in Los Angeles, St. Louis, and New York City constitute pilot exploration in the area of teenage sex behavior. The American Social Health Association and the Public Health Service, as a result of these pilot studies, are now in a position to launch a significant study of adolescent and young-adult sex behavior directed toward the establishment of criteria for control of the venereal diseases and for approaching the problems of sex delinquency, unwed motherhood, and the attitudes of youth toward the society in which it is expected to grow and become effective.

The task force has restricted its recommendations to action programs and their continuing evaluation. This is in keeping with the charge of the Surgeon General which was to recommend a program to "eradicate syphilis as a public health problem." This we consider to be achievable through accelerated and intensified programs developed through improved use of existing facilities in this country and with present experience and knowledge. However, worldwide eradication is, we think, a proper goal for the World Health Organization and should be a theme for international planning. Without it, no State or Nation can remain secure in its efforts to control syphilis.

Mr. Fogarty. Now, these are all outstanding people, are they not, that you appointed?

Dr. Brown. Yes, sir.

EVALUATION OF THE REPORT

Mr. Fogarty. I think it is a good report, as far as it goes, but I think it is a rather conservative report. What do you think?

Dr. Brown. Well, Mr. Chairman, we feel that the evaluation of the problem by the task force agreed with our thinking. The addition of funds as indicated would be adequate to provide assistance to States to carry out the program which I briefly outlined—of visiting physicians to get them to report their cases of syphilis and to allow the interviewing of their infectious cases, and to work with laboratories to obtain leads to all infectious cases that should come to the health department's attention in order to apply good epidemiology. This would, within a period of 10 years, eradicate syphilis as a public health problem.

PROGRAM COST ESTIMATES

Mr. Fogarty. I do not see in the conclusions any cost estimates.

Mr. Kelly. For the Federal Government there is a recommendation of $3.5 million annually for project grants.

Mr. Fogarty. How many years?

Mr. Kelly. I think it was over a 10-year period; $3.5 million annually in grants.

The question that we had was how large an amendment would be required to carry out their recommendations, and how much would be needed the first year, or whether you would go right up to that level.

Mr. Ackerman. I think the important thing in the recommendation was the establishment of man-year goals, as to how many man-years it would take to accomplish these goals. That was really the basis on which the committee established their recommendations.

Mr. Fogarty. What do you think it will take, Doctor? Accepting the task force recommendations as it is, what do you think we need in addition to what is in the budget for 1963 for the first year?

Dr. Brown. Mr. Chairman, I think $5.1 million for grants to States, plus an addition to the research and training technical services of $500,000 to initiate a program of education and information and to do studies in behavioral science fields.

Mr. Fogarty. Your appropriation for 1962 is $6 million and your request for 1963 so far is $7 million.

Now, to carry out the first year of this recommendation, how much will have to be added to that $7 million figure?

Mr. Ackerman. Approximately $2 million, sir.

Mr. Fogarty. About $2 million?

Mr. Ackerman. Yes, sir.

Mr. Fogarty. How would that be spent? How would that $2 million be spent?

Dr. Brown. It will be in addition, over and above the budget presented, of $1.5 million for grants to the States to assist them in carry-out the program, and $500,000 to initiate the program of education and studies in behavioral science.

Mr. Fogarty. Do you think that will get you off to a good start?

Dr. Brown. Yes, sir.

INCIDENCE OF VENEREAL DISEASES

Mr. Fogarty. Will you supply for the record the figures for the last 6 years, on the incidence of syphilis and gonorrhea?

(The information requested follows:)

Supplemental information relative to venereal disease morbidity, United States, fiscal years 1956–61

[Known military cases excluded]

Fiscal year	Primary and secondary syphilis [1]	Total syphilis	Gonorrhea	Other venereal diseases	Total venereal diseases
1956	6,757	126,219	233,333	3,343	362,895
1957	6,251	130,552	216,476	2,657	349,685
1958	6,661	116,630	220,191	2,342	339,163
1959	8,178	119,981	237,318	2,371	359,670
1960	12,471	120,249	246,697	2,628	369,574
1961	18,781	125,262	265,665	2,733	393,660

[1] Infectious syphilis.

Mr. Fogarty. I understand that we have had more cases of syphilis in 1961 than any year since 1953; is that right?

Dr. Brown. Yes, sir.

Dr. Terry. Mr. Chairman, may I suggest that, if we institute such a program, we will have more cases next year than we have had in recent years—more reported cases, for the simple reason that such an intensive program will bring out a lot of cases that are not being reported now. And I think the committee should be forewarned that this may happen, and will not be any indication of a fault or lack of success of the program.

Mr. Fogarty. I think that is a good point.

GONORRHEA

What about gonorrhea; is that not a real problem, too?

Dr. Brown. Yes, sir.

Mr. Fogarty. It is just as important to try to eliminate that.

Dr. Brown. The number of cases of gonorrhea reported to health authorities has increased, but not anything like the magnitude of those in infectious syphilis.

Mr. Fogarty. What progress are you making in eliminating gonorrhea?

Dr. Brown. From a program standpoint, not any, Mr. Chairman. We are still working in the research field.

The fluorescent technique is being——

Mr. Fogarty. The what?

Dr. Brown. We are using the fluorescent technique in the identification of the gonococcus as a definitive diagnostic tool, and it is being applied in areas throughout the United States, and also an antigen from the surface of the gonococcus, which we feel has to do with immunity and virulence is being studied.

But, as of yet, we do not have the tools to say that we can embark on a program of gonorrhea control as we do in syphilis control.

Mr. Fogarty. Why are you not spending a little more time and effort in this area than you are?

It is important that we do; is it not?

Dr. Brown. In the field of gonorrhea, sir?

Mr. Fogarty. Yes.

Regardless of the budget limitations you are under, what would you like to see done in this field if you had the money?

Dr. Brown. Well, the leads that we have, sir, are being followed up, and the researchers inform me that they are making progress in this field. And, certainly, as a diagnostic tool, we feel that the fluorescent technique will be a good tool—much better than any tool that has ever been produced or developed in the laboratories.

VACCINE FOR VENEREAL DISEASE

Mr. Fogarty. Do you have any hope for the development of a vaccine for venereal diseases?

Dr. Brown. Yes, sir. We hope for development of a vaccine, a syphilis vaccine. As of the moment, I think we are further ahead, actually, in the field of developing a vaccine for syphilis than we are for gonorrhea.

But I may add, sir, that the program of eradication is based upon an intensive epidemiologic program and would not be hindered—would not depend upon the development of a vaccine. A vaccine would be a real adjunct to the program and also would hold the gains made.

DEPARTMENTAL BUDGET REQUEST

Mr. Fogarty. What did you ask the Department for?

Dr. Brown. We asked the Department for a total of $8,515,000, of which $5,100,000 were for assistance to States, and then for other operations, $3,415,000. This was under research, training, and technical services.

Mr. **Fogarty.** So the Department cut your request over a million dollars, even though this committee has been increasing the requests 6 out of the last 7 years?

Now are there any other problems you have, Doctor, that you would like to talk about?

Dr. **Brown.** No, sir; I believe not.

The program as outlined in the task force, which we certainly concur in——

Mr. **Fogarty.** Well, that is a conservative report, I think.

Dr. **Brown.** Well, I believe, sir, that the number of additional workers will accomplish the objectives.

Mr. **Fogarty.** You will be satisfied if you get the additional funds?

Dr. **Brown.** Yes, sir; I believe so.

Mr. **Fogarty.** All right; is there anything else you want to say?

Dr. **Brown.** No, sir.

Mr. **Fogarty.** Thank you very much, sir.

Dr. **Brown.** Thank you, Mr. Chairman.

DENTAL SERVICES AND RESOURCES

Monday, February 5, 1962.

WITNESSES

DR. DONALD J. GALAGAN, CHIEF, DIVISION OF DENTAL PUBLIC HEALTH AND RESOURCES

DR. THEODORE J. BAUER, CHIEF, BUREAU OF STATE SERVICES

STEPHEN J. ACKERMAN, FINANCIAL MANAGEMENT OFFICER FOR COMMUNITY HEALTH PROGRAMS

DR. LUTHER L. TERRY, SURGEON GENERAL

JAMES F. KELLY, DEPARTMENT BUDGET OFFICER

Object classification

[In thousands of dollars]

		1961 actual	1962 estimate	1963 estimate
11	Personnel compensation:			
	Permanent positions	1,026	1,202	1,326
	Positions other than permanent	240	222	244
	Other personnel compensation	6	3	3
	Total personnel compensation	1,272	1,427	1,573
12	Personnel benefits	142	164	181
21	Travel and transportation of persons	131	167	186
22	Transportation of things	26	15	12
23	Rent, communications, and utilities	15	15	17
24	Printing and reproduction	13	19	25
25	Other services	138	94	121
	Research contracts	125	239	225
	Payment to "Bureau of State services management fund"	48	43	48
26	Supplies and materials	69	65	70
31	Equipment	87	53	49
	Total obligations	2,065	2,300	2,506

Personnel summary

	1961 actual	1962 estimate	1963 estimate
Total number of permanent positions	156	173	188
Full-time equivalent of other positions	52	48	54
Average number of all employees	182	204	227
Number of employees at end of year	197	236	258
Average GS grade	7.7	8.0	8.1
Average GS salary	$6,668	$6,802	$6,840

Program and financing

[In thousands of dollars]

	1961 actual	1962 estimate	1963 estimate
Program by activities:			
Research, training, and technical services (total program costs) [1]	2,042	2,328	2,506
Change in selected resources [2]	23	−28	
Total obligations	2,065	2,300	2,506
Financing:			
Comparative transfers from other accounts	−2,065		
Unobligated balance lapsing		100	
New obligational authority		2,400	2,506
New obligational authority:			
Appropriation		2,500	2,506
Transferred to "Salaries and expenses, Office of the Surgeon General" (42 U.S.C. 226)		−100	
Appropriation (adjusted)		2,400	2,506

[1] Includes capital outlay as follows: 1961, $88,000; 1962, $59,000; 1963, $55,000.

[2] Selected resources as of June 30 are as follows: Unpaid undelivered orders, 1960, $120,000; 1961, $143,000 1962, $115,000; 1963, $115,000.

GENERAL STATEMENT

Mr. FOGARTY. Dr. Galagan, do you have a statement on "Dental services and resources"?

Dr. GALAGAN. Yes, sir; I do, Mr. Chairman. I would like to file it for the record.

Mr. FOGARTY. That will be placed in the record.

(The prepared statement of Dr. Galagan follows.)

STATEMENT BY CHIEF, DIVISION OF DENTAL PUBLIC HEALTH AND RESOURCES ON "DENTAL SERVICES AND RESOURCES, PUBLIC HEALTH SERVICE"

Mr. Chairman and members of the committee, I am glad to have this opportunity to describe the activities of the Division of Dental Public Health and Resources, which appear in the Public Health Service budget under the appropriation title, "Dental services and resources."

We are concerned not only about finding solutions to problems which already exist but about anticipating and effectively preventing new trouble spots and new threats to our ability to achieve the dental health standards to which the people of this country are entitled.

Too many people for too many years have regarded dental disease with indifference.

An existing backlog of 700 million unfilled cavities is discouraging evidence of the magnitude of existing dental needs. But caries is only an illustration of the problem, not its sum total.

Of those people who retain some of their teeth into their midfifties, one in two will become completely edentulous, largely because of periodontal disease.

Some 6,000 babies born this year will be crippled and deformed by cleft lips or cleft palates. We are able to repair some of their faces. We do not know how to prevent the condition itself.

Hundreds of thousands of others must bear the psychological and physiological burdens of gross malocclusion.

This year—and the year after—oral cancer will cause 1 out of every 40 cancer deaths—many of them needless.

It would be unrealistic to say that public apathy is the sole cause for the neglect of the great mass of dental needs. Millions—the number increases daily—do seek dental services. Many more millions are unable to do so for reasons beyond their control. Many cannot pay for care and some groups, like handicapped children and the chronically ill and aged, must be cared for by dentists especially trained or through programs especially tailored to their needs. Dentists trained for these purposes, and programs of this special nature are almost nonexistent.

Finally, there is this ironic fact: If even a bare majority of those who need care were to seek it now, dentists in this country could not begin to meet demands—not even demands for fillings alone. For several years, the Nation has suffered a steady decline in its relative supply of dentists. The shortage threatens to become acute. And if we permit threat to become reality, our ability to maintain even the inadequate dental health standards prevailing today will be immeasurably weakened.

That is the background against which the Division works. It adds up to these words of the Commission on the Survey of Dentistry, that "whatever the reasons * * * this Nation's performance falls far short of its ability to assure optimum oral health for its people."

Our responsibility as a Division is to achieve just such optimum oral health for the people. To that end, we will continue the development of a comprehensive series of activities. For 1963, an increase of $206,000 over the 1962 level of $2,300,000 is requested. During the coming year, we are placing our greatest emphasis on three major programs—disease prevention and control, dental prepayment, and manpower supply and utilization. Each of the three program advancements for which increased funds are requested represent activities which the Commission on the Survey of Dentistry has recommended for rapid implementation.

DISEASE PREVENTION AND CONTROL

Of the preventive methods available in dentistry, the use of fluorides is the most effective. The fluoridation of community water supplies, in particular, is economical, safe, and effective, reducing caries attack by as much as two-thirds. Unfortunately, in recent years, its opponents, who make up in intensity what they lack in numbers, have succeeded so well that the controlled fluoridation of community water supplies is now falling behind population growth. Proponents of fluoridation have scientific facts on their side; they lack aggressive leadership. In full accord with the survey of dentistry that fluoridation deserves the effective support of authoritative agencies and groups, the Division has in 1962 regrouped some of its resources in order to strengthen its fluoridation activities. An increase of five positions and $60,000 in 1963 will provide for the development of a wide range of informational materials, and will enable us to give necessary assistance to State and local agencies in their utilization.

In other fluoridation projects designed to reach those persons not on community water supplies we are collecting operational cost and consumer cost data on home fluoridators, assessing school fluoridators, and testing the practical value of dentifrices containing fluoride. Finally, we are continuing clinical tests to evaluate partial defluoridation of water supplies containing an excess amount of natural fluorides. If the expected favorable results are realized, in 1963 the Division will attempt to implement the methods developed and tested in other communities where excess fluorides are a problem.

In 1961 a pilot project was begun in Minnesota designed to evaluate the practical application of cytological testing in the screening of suspicious oral lesions for cancer. The program is conducted through the offices of private dental practitioners who are given special instructions in the procedures for obtaining smears from the oral cavities of their patients. Preliminary reports from the study are extremely encouraging and suggest that exfoliative cytological techniques may be of valuable assistance in the early detection of oral cancer. This study will be continued in 1963 at the current level.

Because the very great dental needs of disadvantaged groups cannot be met within existing patterns of dental practice, we have been strengthening our efforts to develop care programs for the mentally and physically handicapped child and the chronically ill and aged. Three pilot projects to meet the needs of handicapped children are now underway. Three others are being added with funds made available by the Congress in 1962. To gain the widest possible audience for the facts we have learned about dental treatment for the chronically ill and aged, we are circulating films and publishing a comprehensive report of our recently completed clinic project in Kansas City.

In addition, projects in 11 dental schools have been established this year to develop the curriculums and teaching methods needed for the training of dental students in the specialized techniques required to provide dental care for the chronically ill, the aged, and handicapped children. This new addition to the curriculum is a significant milestone in dental education and in developing workable solutions for providing care for these long-forgotten homebound and institutionalized people.

In 1963, these activities will continue at approximately the same budgetary level, but greater emphasis will be placed upon increasing community interest in and financial support of such programs. An increase of $6,000 is requested to annualize the new positions allowed in 1962.

DEVELOPMENT OF DENTAL HEALTH PROGRAMS

Cost has always been a strong deterrent to the seeking of dental services. The line separating those who get care from those who do not is more easily defined in terms of economics than of need. In any year, only 19 percent of those making less than $2,000 get any care, compared with 54 percent above $7,000. Comparable figures for children are 21 percent and 75 percent.

The growth of group prepaid dental care plans is, therefore, of great interest for the simple reason that they do reduce the financial burden of dental treatment. Intelligently planned and administered, these programs can become a real force in the betterment of the Nation's dental health. We, therefore, conduct a variety of studies of different plans, and maintain an information clearinghouse to distribute administrative and actuarial data and other relevant material on prepayment. This year, for example, we will publish the third edition of the "Digest of Prepaid Dental Care Plans."

Steadily increasing demands for direct assistance in actual plan administration prompted a cooperative arrangement with the nonprofit Michigan Dental Service Corp. This year we have furnished the corporation with an administrator. The corporation in return gives on-the-job training to administrators of prepaid plans. We have access to the corporation's records. Thus we will add to the data enabling us to make predictions of costs of different plans under various conditions.

Also in process are: reports of the operational experience of a San Francisco group practice which offers dental care for a monthly premium to individuals and families; analyses of the organization and operation of the Oregon and California Dental Service Corps.; and 5 years of experience with a prepaid, union-employer sponsored program for children on the west coast. It is proposed to increase the number and variety of studies and consultative services in 1963 to fill existing gaps in the development of prepaid dental care.

A real beginning toward defining the status of State and local, publicly supported programs is being made in 1962 with the publication of the "Digest of State Dental Programs"—a document which describes State dental health programs and lists their resources. The next step, to be taken in 1963, is to begin the study of the dental programs which operate in local communities. This information will provide basic data required for making decisions about the further development and support of State and local dental programs and will make it possible to develop standards of program performance and indices for measuring progress toward community and national goals in dental health. This is an area in which little work has been done, but which is essential for intelligent planning of public programs and for the expenditure of public funds.

The requested increase of two positions and $20,000 over the 1962 level of $157,100 will provide for expansion of these basic studies in dental economics.

MANPOWER SUPPLY AND UTILIZATION

Growing public interest in dental care, and increased availability through prepayment, underscore the absolute necessity of averting a shortage of dental manpower. In one generation, we have watched the dentist/population ratio fall from 58 to 46 per 100,000. And today, the number of dentists graduated each year falls 2,700 below that needed to pace population growth. Obviously we must train more dentists; to do this, we must build more schools. And the schools we build must make it possible to give dentists better training and teach them to use their skills with greater effectiveness.

In 1962, the Division will publish Dental School Planning, a guide which will aid school officials in planning and building facilities suited to modern teaching concepts and curriculums. We also are engaged in a comprehensive study of the financial condition of the Nation's dental schools. This study, done in collaboration with the American Dental Association and the American Association of Dental Schools, will yield significant information on the dilemma in which dental school administrators find themselves and should give valuable clues as to where additional financial support is needed and might be made most effective.

Some progress has been achieved in the utilization of existing dental manpower. Although the ratio of dentists to population has not increased, the trend toward greater utilization of chairside assistants and other auxiliary personnel accounts for a major part of the increased production of dental services. As in the case of dentists, however, properly trained assistants are in exceedingly short supply. Therefore, the Division currently supports five experimental dental assistants training projects and has also just released a recruitment film on dental assisting as a vocation.

In addition to these projects, the Division supports a project which offers training to graduate dentists in working with auxiliaries, and administers—for the National Institute of Dental Research—a grants program providing formal training in each of the undergraduate dental schools.

An effective solution to the manpower shortage depends, however, upon the character of the training given as well as on the numbers of dentists and auxiliaries trained. Therefore, working in close cooperation with the Council on Dental Education of the American Dental Association and with the American Association of Dental Schools, the Division proposes to initiate cooperative pilot studies to weigh curriculums content and teaching methods against newly emerging patterns of dental practice, with particular emphasis on the possible expansion of the functions of auxiliaries. These studies will provide information upon which educators can base plans for modifying and improving the methods employed in training auxiliary personnel. An increase of eight positions and $120,000 is requested to support this activity.

INDIVIDUAL AND COMMUNITY HEALTH PRACTICES

The progress we make depends to a very great extent on the acceptance of our programs by the profession and the public. We have underway, therefore, a varied series of analytical studies which will help us present our case for better dental health cogently and effectively.

For example, a study will be completed in 1962 which will show what factors cause dentists to employ a chairside assistant and what factors regulate the choice of tasks assigned to them. Other projects will report on characteristics of community populations which have accepted or rejected fluoridation. Other studies now underway will identify why people choose one type of prepaid dental care over another type or one level of service over another.

Each of these studies is expected to provide information which will influence the program and will thereby bring us closer to an understanding of why we sometimes succeed and why we sometimes fail in our efforts to improve the Nation's dental health.

What is learned will be brought to the attention of State and local health agency personnel by regional office staff of the Division—the arm of the Division which is on the front line in achieving applicaton of the many new techniques and methods which are developed and await application.

This activity will continue in 1963 at the current level.

DENTAL HEALTH CENTER

Finally, as we strive for new knowledge about every area of dental science and dental public health, we must learn to use what we already know to greater advantage. The opening last year of the Dental Health Center in San Francisco represents a major step forward in this regard.

The newest arm of the Division—the Dental Health Center—enjoys a unique position as a site for developing new knowledge and for bridging the gap between the availability of new knowledge and its application.

Established on July 1, 1961, and formally opened in November, the center already has inaugurated programs of applied research and training which should have considerable impact on the dental health movement in future years.

To obtain insight into the natural history of the major dental diseases and disorders—dental caries, periodontal disease, malocclusion, cleft lip and palate—broadly based studies of the social and environmental factors associated with the occurrence of dental diseases have been launched at the center. Of particular interest to many is a study of factors associated with the occurrence of facial clefts. From 4 million birth certificates obtained from four States, for the 5-year period 1956–60, all of the information which can be gleaned from the birth certificate about the malformed baby, his parents and environment is being subjected to detailed statistical analysis and compared to information about a sample of normal babies. Analysis of such a large volume of case data is one important step of the many which must be taken to provide a more definitive description of the causes of cleft lip and palate and lead to methods to prevent such gross abnormalities in babies.

Another very different type of research also is being conducted in the center. Recognizing the potential for application in dental education of devices and techniques used in other fields, studies of mechanized teaching systems—closed circuit television, teaching machines, scramble texts—are being conducted. Though it is technically feasible to program some facets of dental education for mechanized presentation, considerable research must be done before its application for professional education can be recommended as practical or desirable. Thus, at the center, every effort will be made to shorten the time required to evolve and evaluate the role of mechanized teaching in professional dental education.

Throughout the report by the Commission on the survey of dentistry, the subject of training was viewed as another critical problem. The report called for continuing and refresher courses for State and local health agency personnel, dental educators, and private practitioners in the theory and application of dental disease control methods and in practice techniques designed to assure the most effective utilization of available dental skill. Though not an easy task to accomplish, the center staff already is developing a series of short courses to meet these needs. For example, a course in research design has already been presented, others are in the planning stages. We are attempting to develop a comprehensive training program which, in every sense of the word, will reduce the timelag between the discovery of knowledge and its application for the benefit of the people.

Despite our present progress, we have no illusions either about the complexity of the job to be done or about the difficulties of doing it successfully. The survey on dentistry set forth the nature and dimensions of the problem with clarity. It also, however, pointed up the action needed to resolve these problems and make substantial improvement in the dental health of the United States. We look forward with confidence to the ability and will of the Nation at large, the dental profession, and our dental public health and resources program to respond to the challenge.

Dr. GALAGAN. Thank you, sir.

It is a pleasure to have the opportunity to present the budget request of the Division of Dental Public Health and Resources.

STATUS OF ORAL HEALTH

I should like first to review very quickly some of the problems with which this Division is concerned.

The population of the United States today has an estimated 700 million unfilled cavities. This accumulated neglect is a monument to the general indifference and apathy about dental health which exists in this country.

Half of those people over 50 have lost all their natural teeth because of periodontal disease (pyorrhea).

Six thousand babies born this year will be crippled and deformed by cleft lip, cleft palate, or both. One out of every 40 cancer deaths will be due to oral cancer. And last, but not least, the increasing shortage of dental manpower is of paramount concern to this Division.

As a matter of fact, of all of the problems I have mentioned, the increasing shortage of dental and auxiliary manpower is the most important and the one which poses the most serious threat to the dental health of the people.

DECLINING RATIO OF DENTISTS TO POPULATION

In the past generation, the ratio of dentists to population has fallen from 58 to 46 per 100,000. We currently——

Mr. FOGARTY. In the last what?

Dr. GALAGAN. In the last 30 years.

Mr. FOGARTY. Thirty years?

Dr. GALAGAN. Yes, sir.

We currently are graduating 2,700 fewer dentists than we need, to keep pace with the growth of the population. And by 1970 this deficit will have risen to 3,300 each year unless we as a nation take some kind of action.

As you know, Mr. Chairman, there are two ways to solve this problem. One is by building more schools so that more dentists can be graduated, and, secondly, the dental work force can be more productive by more efficient use of auxiliary personnel and of modern office practices.

This Division approaches the problem along both of these axes. In anticipation of an accelerated building program which we think the Nation must undertake, we have been studying the dental schools in this country and have in process now a report of these studies which will be available in a matter of 2 or 3 weeks entitled "Dental School Planning." This comprehensive document will be available to universities and school officials to aid them in dental school planning and in the construction of the new schools that will be necessary in order to meet the increased demand for dentists in this country.

In addition, we currently are engaged in a comprehensive survey of the financial structure of the dental schools in this country, assessing the way the schools finance themselves, where they get their money. As you know, a portion of their support comes from tax funds, a portion of it comes from clinic fees, some comes from tuition fees, and a very small amount from philanthropy and gifts.

This major study is being done cooperatively with the American Dental Association and the American Association of Dental Schools.

PROGRAMS TO INCREASE DENTISTS PRODUCTIVITY

Our programs to increase the dentists productivity, on the other hand, include the grants program to teach dental students how to use auxiliaries, which we administer for the National Institute of Dental Research and experimental programs in training assistants. We feel that we must produce more auxiliary personnel if the dentist is to become more effective and more productive in work units or work hours.

We think it is possible to increase the functions of auxiliaries. We foresee the day when the dentist will not have to do everything himself, which he does, for all practical purposes, at the present time.

There has been a change in the attitude of the profession toward research in this area during the last 2 or 3 years.

And therefore, we are proposing, Mr. Chairman, to engage in a study or studies designed to determine the possible expansion of the functions of the dental auxiliary.

We are asking for $120,000 and eight positions to support a study of this kind.

PREVENTIVE PROGRAMS

As for our preventive programs, fluorides still are the most effective and practical means we have for preventing dental caries. The continuing vocal minority in this country is depriving future citizens of the benefits of fluoridation.

The slow progress that we have made in past years has led to a reappraisal of the situation. We have had a series of discussions about the problem with the American Dental Association and with Dr. Terry and the staff in the Office of the Surgeon General. We have decided to regroup our resources in order to intensify our efforts to bring the real facts about fluoridation to the people of this country.

In order to extend this program in fiscal 1963, Mr. Chairman, we are asking for $60,000 and five positions to develop information materials and to increase our ability to provide technical assistance on the fluoridation of community water supplies.

CHRONICALLY ILL

The new legislation and the new programs which the Congress has authorized for the Public Health Service designed to assist the chronically ill and the aged have been of tremendous assistance in the development of community health programs. For the development of dental services they are not as effective as they might be, however, largely because the dental profession is not ready with techniques at its command to participate fully in these community programs.

Therefore, with additional funds provided by the Congress last year, we have started pilot training projects in 11 of the Nation's dental schools designed to teach students how to work with the handicapped and the chronically ill. We believe that programs of this nature will lead eventually to a dental profession able to participate realistically in community programs for the care of the chronically ill and handicapped.

With these additional funds we have started three new community programs designed to demonstrate to the dental profession the techniques, the equipment, and the instruments which are now available and the organizational methods that are available to permit dentists to work with the chronically ill and the handicapped.

DENTAL ECONOMICS

We continue to emphasize our studies of dental economics. We are publishing this year the third edition of the "Digest of Prepaid Dental Care Programs." Prepaid dental coverage has increased from 1.5 million to 2 million people in the last year. We anticipate at any time a major breakthrough in the number of people covered by dental insurance programs.

We are experiencing an increasing demand for technical assistance and consultation on prepaid dental care plans.

Last year, we estimate that we had more than 700 separate requests for technical assistance in this area. Consequently, we are asking for an additional $20,000 and two positions, to develop further our staff competency in dental economics.

SAN FRANCISCO DENTAL HEALTH CENTER

The opening of the dental health center in the former nurses' home in San Francisco occurred, as you know, in November through the kind cooperation of the division of hospitals, which made part of the building available to us.

We have two kinds of programs in the center—a series of epidemiological investigations, and a training program. I would like to mention particularly the very interesting studies of the natural history of cleft lip and palate, a tragic facial defect which has not really been investigated before except from a clinical point of view, and to point out that we have already begun to provide training courses for dentists and dental public health workers in this country and abroad, designed particularly to apply more quickly the knowledge which we have.

We are pleased to have the opportunity to make use of this wonderful facility in San Francisco. Already we are beginning to find some very interesting things in the research which we are conducting there.

SURVEY OF DENTISTRY

Lastly, I would like to mention that, since the last appropriation hearings, the full report of the Commission on the Survey of Dentistry has been made available. It contains more than 70 recommendations designed to improve the dental health of the people of this country. And of these 70, 10 were directed specifically to this Division. Related to programs for which this Division is responsible.

Mr. Fogarty. Put the 70 in the record. Put those 70 recommendations in the record.

Dr. Galagan. I will be glad to supply them for the record.

Mr. Fogarty. And also spell out the 10 that apply directly to your Division.

Dr. Galagan. I will be glad to do that, too.

Mr. Fogarty. And what it would take to put these into effect; how much manpower and funds.

Dr. Galagan. I will do that.

(The requested information follows:)

RECOMMENDATIONS OF THE SURVEY ON DENTISTRY

The "Survey on Dentistry" is an exhaustive and definite assessment of the achievements, resources, and potentialities of dentistry in the United States. It was made for the express purpose of describing and recommending improved approaches, techniques, and methods for the better provision of an essential health service to the American people.

Though the survey was suggested by the American Dental Association and made with its support, it was actually conducted by an independent Commission appointed by the American Council on Education. Commission members included leaders from medicine, dentistry, education, technology, and industry.

The "Survey on Dentistry" was published in 1961 by the American Council on Education. It covered four major areas—dental health, dental practice, dental education and dental research. Under these headings, the Commission made some 70 major recommendations for action:

DENTAL HEALTH

To arouse public interest for all facets of oral health, the Commission recommends that—

"The dental profession take the necessary steps to organize a National Voluntary Council on Dental Health. This citizen organization should be responsible for stimulating interest in the dental health problem and for developing support for programs of dental care, research, prevention, and education."

To increase utilization of known preventive measures against caries, the most common dental disease, the Commission recommends that—

"All public agencies, with the assistance of voluntary associations and professional societies, make greater efforts to promote water fluoridation and community topical fluoride programs.

"A special Federal grant-in-aid be made to States, on a matching basis, to assist communities in meeting the cost of initiating fluoridation programs.

"The funds should be specifically earmarked for this purpose and should be granted on the basis of need. Priority should be given to smaller communities.

"State dental practice acts be modified to allow both dental hygienists and dental assistants to apply fluorides under the supervision of a dentist."

To assure the systematic, continuing programs of health education which are essential to the promotion of oral health, the Commission recommends that—

"The American Dental Association expand the activities of its Bureau of Dental Health Education; that the U.S. Public Health Service increase its dental health education activities directly and through provision of assistance to States; and that State and local public health agencies and dental societies initiate or expand public health education programs.

"The number of trained health educators employed by official health agencies and dental societies be markedly increased, and that educational efforts be guided by their recommendations."

To assure regular care for all children, the Commission recommends that—

"States and local communities design and initiate incremental care programs for children, covering 6-year-olds the first year and adding new groups of 6-year-olds each year until all children through high school are covered.

"The cost of such care be met by the family if family income is sufficient.

"All children from indigent families receive care at community or State expense, with assistance by financial grants from the Federal Government.

"Programs be developed under which communities or States would provide partial payment for dental care, also with Federal assistance, for children of low-income families who are not indigent.

"All parents provide dental care for their children or utilize the services of public programs until the children are able to assume the responsibility for their own care.

"Official health agencies assert their proper leadership in the initiation, planning, and administration of dental care programs, giving first priority to school-age children.

"Programs be established to provide care, under a system of priorities, to adults who are unable to provide for themselves, giving first priority to the relief of pain and infection and to those who may be made employable through the provisions of dental services.

"Existing crippled children's service programs be expanded as rapidly as possible to include comprehensive care for children with oral clefts and other severe dentofacial deformities requiring orthodontic treatment."

To assist low-income groups to purchase care, the Commission recommends that—

"Experimentation in methods of providing and paying for dental care through organized group action be increased; that foundations, labor unions, corporations, and governmental agencies provide funds to support such experimentation.

"Dental service corporations be organized by all State dental societies to facilitate the development of plans for the group purchase of care."

To assure adequate support for dental public health programs, the Commission recommends that—

"Every effort be exerted by the dental profession, in cooperation with other groups, to obtain more adequate financing for dental health programs at the local, State, and National levels.

"Official health agencies make more aggressive efforts to obtain funds for dental health programs.

"A Federal grant-in-aid to the States be established, specifically earmarked for general dental health programs.

"Health agencies establish dental salary schedules comparable to incomes in private practice in order to attract and hold competent individuals."

To further knowledge of the needs of special groups, the Commission recommends that—

"The U.S. Public Health Service and State and local dental health agencies expand demonstration projects and experimentation in special problem fields such as radiation protection, rehabilitation of the handicapped, and provision of dental care for the homebound, aged, and chronically ill."

To assure adequate supply of qualified personnel for public agencies, the Commission recommends that—

"The Federal public health traineeship program and the dental officer career development program of the U.S. Public Health Service be expanded.

"Recruitment activities for all types of dental personnel be greatly expanded, and better methods be developed to present the potentialities of a career in public health to dental and dental hygiene students.

"Dental public health programs make greater use of adjunct personnel, including dental hygienists, health educators, statisticians, engineers, social scientists, and administrative and dental assistants; and experimentation be initiated to develop more effective ways of utilizing adjunct personnel."

To further knowledge of dental diseases, the Commission recommends that—

"Dental public health agencies place greater emphasis upon research and investigation, particularly in areas such as social and behavioral studies, epidemiological investigation, development of more effective administrative techniques, and the evaluation of health education methods; and the U.S. Public Health Service encourage these types of investigations.

"Training courses and workshops in dental research methods be established, and such education be offered to dental public health personnel by the U.S. Public Health Service and by the schools of public health."

To assure competent leadership in all areas of dentistry, the Commission recommends that—

"The scope of training in schools of public health be broadened to provide instruction in administrative methods which would be useful in education, research, and dental care management, as well as in the traditional public health programs.

"The profession give greater recognition to the importance of developing administrative skills; encourage formal training for those who may become engaged in administrative dentistry; and encourage outstanding dental students and dentists to enter this important field.

"Dental public health agencies, in cooperation with dental societies, dental schools, and schools of public health expand their efforts in areas of continuing and professional education for all health and health-related disciplines."

DENTAL PRACTICE

To increase the utilization of known preventive measures, the Commission recommends that—

"All dentists participate vigorously in community public health projects.

"Dentists recognize increasingly the preeminent importance of preventive dentistry by utilizing all available preventive measures in their practices and by educating their patients in the value of prevention.

"The dental profession, dental schools, and public agencies take appropriate action to narrow the gap between the need for prevention and treatment of malocclusion and the services available to meet the need."

To increase the productivity of the dental force, the Commission recommends that—

"Dentists utilize a greater number of well-trained dental assistants.

"The number of schools for assistants be increased.

"The dental profession conduct studies designed to develop and expand the duties of auxiliary personnel. The broadening of services should begin with the dental hygienists because there is already an approved program of education and licensure for this group. The legal and educational restrictions against male hygienists should be removed.

"As soon as the dental profession standardizes the educational programs for dental laboratory technicians and for dental assistants, consideration be given to widening the duties of these auxiliary groups. In the public interest, the education of auxiliary personnel should be carried out under the guidance of the dental profession, and the services performed by all auxiliary personnel should be under the supervision of licensed dentists.

"Dentists in all States be required by law to provide dental technicians with written prescriptions for the fabrication of dental appliances, and these regulations be strictly enforced."

To assure the maintenance of high ethical standards, the Commission recommends that—

"Dental schools and societies offer comprehensive courses in practice administration for established practitioners.

"Local. State, and National dental organizations promote studies designed to provide information that will help dentists establish a sound basis for determining fees.

"Dentists and patients have a mutual understanding of treatment plans, including fees for services, before treatment is begun.

"Local and State dental societies be encouraged to establish and maintain mediation committees to adjudicate disputes between practitioner and patient."

To improve accepted methods of licensure, the Commission recommends that—

"An effective relationship between State licensing boards and the council of the National Board of Dental Examiners be developed, and all States accept the results of the national board examinations in lieu of their own written examinations, thereby restricting their evaluation to technical and clinical procedures.

"Every effort be made to improve the quality of State board examinations by insuring the appointment of well-qualified dentists to the examining boards.

"The dental profession explore the possibilities of various programs which might be adopted to insure the continuing qualification of dental practitioners."

To assure a closer coordination of dentistry with other health sciences, the Commission recommends that—

"In the interest of total health care of patients, both hospitals and dental societies work for the establishment of more hospital dental departments and encourage dentists to participate in hospital service.

"Hospital dental departments be delegated authority and administrative responsibilities similar to the authority and administrative responsibilities of other hospital services.

"Dentistry be represented on the joint commission on accreditation of hospitals.

"A larger number of carefully supervised dental internships be developed in hospitals, schools, and clinics, and dental students be encouraged to enter internships following their graduation.

"Cooperation be encouraged between the dental profession and sponsors of health insurance programs (nonprofit and commercial) developed and operated to meet the public's need for comprehensive health care.

"Dental schools develop courses through which practicing dentists appointed to hospital staffs may receive basic instruction in hospital procedures. "

DENTAL EDUCATION

To forestall a critical shortage of dentists, the Commission recommends that—

"Consistent with high standards, present schools be expanded and new schools constructed to permit the graduation of at least 6,000 dentists annually by 1975; also, additional facilities be provided for the training of auxiliary personnel, both in dental schools and other institutions.

"A national recruitment program be established to attract better students, both men and women, in larger numbers to the study of dentistry. Such a program should be under the sponsorship of the American Association of Dental Schools and should include a scholarship and loan program based on merit and need. This program would complement those of individual schools and should be integrated with the recruitment programs of other organizations and agencies. It should also provide for recruitment of well-qualified applicants, both men and women, to dental hygiene programs and to other training programs for auxiliary personnel.

"The admissions standards of dental schools be reviewed for the purpose of improving the quality of the students admitted."

To reduce the heavy workload borne by most dental teachers, the Commission recommends that—

"Dental schools improve the quality of their instruction by—

"Increasing the number of teachers employed.

"Raising the qualifications required for beginning teachers.

"Improving the teaching skills of present faculty members.

"Employing a larger proportion of teachers on a full-time basis.

"Employing part-time teachers generally on at least a half-time basis.

"Both full-time and part-time teachers generally be encouraged to devote more time to laboratory, clinical, and educational research and to other university activities.

"Dental schools develop or improve faculty in-service programs on the fundamental principles of teaching and the problems facing dental education."

To improve the undergraduate dental curriculum, the Commission recommends that—

"Organizations such as the American Association of Dental Schools arrange and conduct a series of institutes or conferences for dental teachers to improve the content and correlation of courses.

"Dental schools make their curriculums more flexible and stimulating. Where possible, honors programs should be arranged for gifted students.

"Dental schools develop or improve organized programs for the counseling of undergraduate dental students.

"Dental schools give students more instruction in how to establish and administer a dental practice.

"Dental schools give students more experience in working with auxiliary personnel, especially with dental assistants. Students should understand completely the importance that effective utilization of such personnel plays in the practice of dentistry.

"Dental schools have active hospital affiliations and that dental students receive instruction and experience in hospital procedures."

Recognizing that self-evaluation should be a continuous process within every school, the Commission recommends that—

"Every dental school expand or develop a program to evaluate the effectiveness of its teaching. The methods to be employed should be decided upon by the dean and the faculty cooperatively, but provision should be made for student participation.

"The American Dental Association reevaluate the activities of the Council on Dental Education for the purpose of permitting the council to perform its function of accreditation more effectively."

To assure the financial support which growth and improvement in dental education will demand, the Commission recommends that—

"Because of the importance of dental education and research to the welfare of the Nation, and because evidence shows that most dental schools are facing difficult financial problems, greater financial support be contributed by—

"Alumni of dental schools.

"Benefactors.

"Business corporations.

"Foundations.

"State and local tax bodies.

"Universities give more financial support to their dental schools.

"The Federal Government assist dental education by providing funds for operational expenses as well as for new construction and remodeling, and for scholarship and loan funds for dental students. This assistance should not interfere with university autonomy in admissions policies and curriculum content."

DENTAL RESEARCH

Because research ultimately offers the best hope of preventing dental diseases, the Commission recommends that—

"Financial support for dental research be increased not only from Federal sources but also from individuals, philanthropy, and corporations. The increase in financial support should be commensurate with the increase in the availability of research personnel.

"A nongovernmental agency be established for the solicitation and distribution of grants from industry and philanthropy for the advancement of research in the cause and the control of oral disease.

"The Federal Government, in its support of research and training in the fields of health, adopt the principle of payment to universities of the full overhead costs."

Believing that research programs in existing schools should be expanded before new schools are built, the Commission recommends that—

"Universities assume more responsibility for the development of close relations among their dental schools, other health science schools, and graduate departments in order to promote exchanges of knowledge and ideas.

"Dental schools initiate or reinforce programs designed to stimulate faculty interest in research in order to improve the interest in scholarly pursuits.

"Dental schools enlarge their faculties to provide more time for research for those who are competent to engage in it.

"Substantial Federal funds be made available for the recruitment and training of competent scientists from dental and other fields of science to do research in dental schools.

"Dental schools develop and improve programs which are designed to interest dental students in research and teaching."

To attract more qualified people to research, the Commission recommends that—

"Financial support for fellowship and training programs be augmented.

"A form of fellowship be created between the postdoctoral and the senior fellowships for career development and that it be supported by Federal funds."

Recognizing the need for understanding of public attitudes toward dental health, the Commission recommends that—

"Dental research efforts be broadened to include more projects in the fields of the social sciences and in education, and that the collaboration of the appropriate university departments be enlisted for such studies."

Because the knowledge produced by research is most valuable when it is applied, the Commission recommends that—

"There be an expansion of facilities for the evaluation and standardization of pharmaceutical preparations used in the treatment of dental disease.

"Communication of research findings to dental teachers and to practitioners be accelerated, and that Federal and other assistance be provided for the dissemination of research information by the use of publications, seminars, and institutes."

MAJOR RECOMMENDATIONS RELATED TO DIVISION OF DENTAL PUBLIC HEALTH AND RESOURCES

1. A special Federal grant-in-aid be made to States, on a matching basis, to assist communities in meeting the cost of initiating fluoridation programs. The funds should be specifically earmarked for this purpose and should be granted on the basis of need. Priority should be given to smaller communities.

2. A Federal grant-in-aid to the States be established, specifically earmarked for general dental health programs.

3. The U.S. Public Health Service and State and local dental health agencies expand demonstration projects and experimentation in special problem fields such as radiation protection, rehabilitation of the handicapped, and provision of dental care for the homebound, aged, and chronically ill.

4. The American Dental Association expand the activities of its bureau of dental health education; that the U.S. Public Health Service increase its dental health education activities directly and through provision of assistance to States; and that State and local public health agencies and dental societies initiate or expand public health education programs.

5. States and local communities design and initiate incremental care programs for children, covering 6-year-olds the first year and adding new groups of 6-year-olds each year until all children through high school are covered.

   (*a*) The cost of such care be met by the family if family income is sufficient.

   (*b*) All children from indigent families receive care at community or State expense, with assistance by financial grants from the Federal Government.

   (*c*) Programs be developed under which communities or States would provide partial payment for dental care, also with Federal assistance, for children of low-income families who are not indigent.

6. The Federal public health traineeship program and the dental officer career development program of the U.S. Public Health Service be expanded.

7. Dental public health agencies place greater emphasis upon research and investigation, particularly in areas such as social and behavioral studies, epidemiological investigation, development of more effective administration techniques, and the evaluation of health education methods; and the U.S. Public Health Service encourage these types of investigations.

8. Training courses and workshops in dental research methods be established. and such education be offered to dental public health personnel by the U.S. Public Health Service and by the schools of public health.

9. The Federal Government assist dental education by providing funds for operational expenses as well as for new construction and remodeling, and for scholarship and loan funds for dental students. This assistance should not interfere with university autonomy in admissions policies and curriculum content.

10. Dental schools give students more experience in working with auxiliary personnel, especially with dental assistants. Students should understand completely the importance that effective utilization of such personnel plays in the practice of dentistry.

PRICING THE SURVEY OF DENTISTRY AS IT RELATES TO DPHR ACTIVITIES ESTIMATED FIRST YEAR FEDERAL COST

For 1963, to implement the major recommendations of the Commission on the Survey of Dentistry in the United States would cost $78,820,000. Of this amount, $67.3 million would go for construction of dental schools and related items and the remainder, $11,520,000, for specific and general purpose grants and program support. The specific activities and amounts are:

1. Fluoridation grants At 8 cents per capita to add 8 million individuals per year, (on a 50 percent Federal—50 percent State and local basis), a Federal grant of $320,000 per year would be required.	$320, 000
2. Dental grant (general) Dental health grants (not including project grants), based on population and per capita income.	7, 500, 000
3. Dental care of handicapped, homebound, chronically ill and aged A program of demonstrations, workshops, support for curriculum development, both directly and through project grants.	2, 000,000
4. Expansion of dental health education activities General program expansion with particular emphasis on fluoridation and caries prevention.	400, 000
5. Incremental dental care program for children Support for 8 incremental dental care programs for children on a demonstration basis.	300, 000
6. Expansion of career development program Double the number of individuals (10) now in the career development program.	150, 000
7. Expansion of research and investigation Increased activity in behavioral research ($150,000), epidemiological investigations ($500,000), and technical assistance related thereto ($100,000) through direct operations and project grants.	750, 000
8. Training and workshops in dental research methods Project grant support for schools for workshops for 500 individuals at an avearge cost of $200 per person.	100, 000
9. Funds for dental school construction and operation Grants for new construction ($9.2 million), expansion and renovation ($5.7 million), operating support ($25 million unmatched), scholarships and loans ($27.4 million unmatched).	67, 300, 000

WATER FLUORIDATION PROGRAM

Dr. **Galagan.** In summary, we are asking for an increase of $206,000 and 15 positions, which will permit us to expand our programs in community water fluoridation, dental economics, and the use of auxiliaries.

Mr. Chairman, I would be pleased to answer any questions about the budget or about our program.

Mr. **Fogarty.** All right.

BUDGET FOR 1963

Mr. **Fogarty.** Your appropriation for 1962 is $2,500,000, and the request for 1963 is $2,506,000. Quite an increase—$6,000.

But since there is a comparative transfer of $100,000 to the Surgeon General's office, the real increase is $106,000 and nine positions above the amount authorized for 1962. Is that correct?

Dr. **Galagan.** That is correct.

TRANSFER TO SURGEON GENERAL'S OFFICE

Mr. **Fogarty.** Would you explain the transfer to the Surgeon General's office?

Dr. **Galagan.** This included the transfer of the Office of the Chief Dental Officer, which formerly was carried in our appropriation.

Mr. **Ackerman.** This year all of the chief professional officers have been transferred, organized into the Office of the Surgeon General, and the money.

Dr. **Terry.** Not only they, but the staffs supporting them and their office expenses.

Those people will be functioning now in a total staff type of responsibility, rather than in a mixture of a line and staff type of responsibility, and we thought in order for them to work in this way, it would make it clearer that, if they were clearly tied to the Office of the Surgeon General, the manner in which they operated would be clearer to them, as well as to everyone else.

RESERVE OF 1962 APPROPRIATIONS

Mr. **Fogarty.** I notice you have a reserve for savings of $100,000.

Dr. **Galagan.** Yes, sir.

Mr. **Fogarty.** Did you offer this up or was it taken from you?

Dr. **Galagan.** I am afraid it was the latter, Mr. Fogarty.

Mr. **Fogarty.** You did not offer it up?

Dr. **Galagan.** No, sir.

Mr. **Fogarty.** How is this cut of $100,000 going to affect your program?

Dr. **Galagan.** Well, it would prevent us from adding to the programs for the care of the chronically ill and the aged. These were funds which were appropriated specifically for extending community-based programs of this kind.

Mr. **Fogarty.** Well, that was my understanding. The Senate increased this appropriation last year three-hundred-and-some thousand dollars?

Dr. **Galagan.** Yes, sir.

DENTAL CARE FOR THE AGED

Mr. Fogarty. In conference we went along with the increase, because we were given to understand that most of this increase would be used to take care of the aging and the handicapped. And I thought you people made a real good case last year regarding the problems of the aging, especially in nursing homes, where they do not even have any facilities for a dentist to visit the nursing home.

Is that not still so in many nursing homes today?

Dr. Galagan. Yes, sir; lack of dental care is an acute problem.

DENTAL CARE FOR THE HANDICAPPED

Mr. Fogarty. And also there is a big problem regarding handicapped children. We have in Rhode Island, I think the only dental clinic for the retarded and those with cerebral palsy.

Dr. Galagan. Yes, sir.

Mr. Fogarty. Or it was the only one being operated under a grant from the Office of Vocational Rehabilitation.

Dr. Galagan. That is correct.

Mr. Fogarty. The dentists were reluctant to take these children in their offices because they are difficult to work on. Many of the dentists thought that this work should be performed in connection with the hospital where their clinic is. This project has worked out very well. For the first time in their lives, some of these children are getting dental attention today. We hoped it would spread throughout the country, but I have not heard of any clinics like this being started.

Dr. Galagan. With the funds which Congress gave us last year, we are underwriting similar programs. This announcement, which just reached my desk a day or two ago, is an example of a new program we have started.

Mr. Fogarty. What is this?

Dr. Galagan. This is an announcement of the opening of a clinic for handicapped children in Seton Hall University at the Jersey City Medical Center. The program is designed not only to teach students how to work with these children, but also to develop a program of community service for the handicapped children in the area.

Mr. Fogarty. That sounds good.

RESERVE OF 1962 APPROPRIATIONS

I am sorry to see this $100,000 taken from you, because you may never recover the ground you will lose this year because of this $100,000 reduction.

Practically all the reserve was applied against this $318,000, was it not?

Dr. Galagan. Yes, sir.

Mr. Fogarty. And that was to be applied to the demonstration and stimulation of the extension of dental services to handicapped children and to the aged, homebound, and institutionalized persons.

Well, that is another good reason why the Secretary ought to release these funds. You ought to get the $100,000 back.

PROGRAM INCREASES

Now, on page 158 you set forth the changes you proposed for 1963, which come out to a net increase of $206,000. But this is an increase over what the Secretary and the Bureau of the Budget are allowing you to spend in 1962 instead of what Congress authorized; is it not?

Dr. GALAGAN. That is correct; yes, sir.

Mr. FOGARTY. The increase over what Congress authorized for 1962 is only about half of that; is that right?

Dr. GALAGAN. Yes.

Mr. ACKERMAN. That is correct.

Mr. FOGARTY. Would you explain these items that are labeled "Program increases" on page 158?

Dr. GALAGAN. The program increase for the expansion of our disease prevention and control programs would be directed toward developing new materials and technical assistance in community water fluoridation, requiring the sum of $60,000 and five positions.

The second area of expansion would support the further development of staff for technical assistance in the dental economics area and would require $20,000 and two positions.

And the third one, which adds up to $120,000 and eight positions, will be used for conducting experiments with the possible expansion of the functions of dental auxiliaries.

ORIGINAL BUDGET REQUEST TO THE DEPARTMENT

Mr. FOGARTY. What did you ask the Department for?

Dr. GALAGAN. $5,246,000.

Mr. FOGARTY. They gave you a pretty sizable cut, did they not?

Dr. GALAGAN. Yes, sir.

Mr. FOGARTY. Down to $2.9 million. Percentagewise, how much is that?

Dr. GALAGAN. Not quite 50 percent.

Mr. FOGARTY. Pretty close to 50 percent?

Dr. GALAGAN. Yes, just under that.

Mr. FOGARTY. What is the percentage you figured out?

Mr. KELLY. It is about 45 percent of the request.

Mr. FOGARTY. I thought they cut the tuberculosis program pretty severely, but you are worse off than tuberculosis is; you got a cut of 45 percent.

What is the matter? Does not the Department like your Division, or what?

Will you put in the record now what that 45 percent cut would amount to in positions and programs and how you think it would serve the national interest if we allowed that full amount you asked for?

Dr. GALAGAN. I would be glad to do so.

(The requested information follows:)

Effect of departmental disallowance on estimate for 1963

Activity	1963 preliminary estimate to Department		1963 Department allowance		Difference		Brief summarization by activity of items not allowed
	Positions	Amount	Positions	Amount	Positions	Amount	
Research, training, and technical assistance.	367	$5,246,000	213	$2,900,000	154	$2,346,000	
General consultation and program support.	46	529,800	46	529,800	0	0	
Disease prevention and control.	141	2,392,000	74	1,024,000	67	1,368,000	Curtailed expansion of fluoridation program; reduced fluoride tablet study; reduced incremental dental care study; reduced handicapped children projects; and reduced studies of institutionalized and homebound.
Development of dental health programs.	48	541,100	21	207,100	27	334,000	Curtailed expansion of studies of prepayment public plans and dental economics.
Manpower supply and utilization.	96	1,330,800	36	686,800	60	644,000	Reduced construction preparedness program; eliminated study of factors in career selection; eliminated program for the development of executive aids; and curtailed expansion in curriculum research.
Individual and community health practices.	14	142,400	14	142,400	0	0	
Dental health center	22	309,900	22	309,900	0	0	

HOW THESE PROGRAMS WILL SERVE THE NATIONAL INTEREST

The preliminary budget of $5,246,000 submitted by the Division of Dental Public Health and Resources is a realistic assessment of the things which must be done if we are to meet our responsibilities as a Federal agency in overcoming the mounting dental health problems which now threaten the best interests of this Nation.

To say that the Federal programs this budget makes possible would directly or indirectly affect, perhaps even determine, the overall adequacy of the Nation's dental health standards for years to come is to state a basic truth. Even a cursory reading of the recent and definitive "Survey of Dentistry" makes this clear.

This thoroughly independent and objective report covers every phase of dentistry—dental health, dental practice, dental education, and dental research. And in each of these areas, the Commission's analysis of the needs for remedial action invariably include recommendations for Federal action.

The programs the Division of Dental Public Health and Resources has proposed in its preliminary budget represent an honest effort to implement these recommendations of the Commission on the Survey of Dentistry. Therefore, the manner in which our programs serve the national interest can best be seen against the Commission's own definition of the total dental health problem and its delineation of the areas in which remedial action can and must be taken.

The Commission defines the problem as one which begins with the widespread attack of dental disease and is compounded by the public's failure to utilize available preventive and treatment methods. The situation is the more tragic because American society has the resources to combat it, yet does not use them to the fullest. If this gap between what the Nation does and what it could do is ever to be bridged, substantial progress must be made in the following critical areas:

1. Because the American people set an astonishingly low priority on dental care, a primary and obvious necessity is to heighten public appreciation of the importance of dental care.

All the Division's activities are in a sense programs of public education. But one program included in the preliminary budget was aimed specifically at overcoming what the Commission considers a serious handicap to successful public education: the lack of social research. Because health agencies do not know why people feel as they do toward questions of dental health, they do not know how to approach the public they serve. As a result, their programs lack focus and effectiveness. The Social Studies Branch of the Division proposed to evaluate public reactions to dental care and to educational and informational material. These pioneer studies would provide the missing why of health education and serve as a prototype for similar studies which may be undertaken later by other agencies and institutions.

2. Because the proportionate supply of dentists is steadily declining, the Commission points out both that the number of dentists must be increased and that available manpower be used more effectively.

The Division's Manpower and Education Branch proposed to augment its manpower supply studies, which make it possible to estimate needs for training facilities, with a series of studies in curriculum research, construction preparedness, and factors in career selection. These would assure an educational process adapted to the changing environment of dental practice, schools built and renovated in a manner which accommodates modern methodology, and the development of effective methods for attracting top students into dentistry. At a time when improvement of professional education is a major national need, these programs would assure the best possible use of the dental educational dollars, as well as a better use of available manpower.

3. Because the ideal method of protecting the Nation's health is by preventing the occurrence of disease altogether, the Commission urges the fullest possible extension of the fluoridation of community water supplies—the most effective preventive measure yet developed in dentistry.

One of the major activities proposed by the Division's Disease Control Branch was an expanded and intensified "facts for fluoridation" program. Essentially, an education campaign designed to inform the public of the safety and value of fluoridation as a disease preventive and to aid State and local agencies and dental groups in planning and implementing fluoridation activities, this program could effectively reverse a current trend which finds fluoridation lagging behind population growth. And, the proposed study of the effectiveness of fluoride tablets could provide a valuable alternative for situations in which water fluoridation is not practicable.

The primary importance of fluoridation is that it can reduce the incidence of dental caries by as much as 60 percent, and in so doing inevitably reduce subsequent loss of teeth. But it has other important overtones. By achieving nationwide fluoridation programs, this country in time could divert much of the time, skill, and money it now expends on a preventable disease—dental caries—into research for the development of equally effective methods for the prevention and control of other serious dental conditions.

4. Because comprehensive dental care is essential to dental health, the Commission urges the provision of continuing dental care to schoolchildren, the encouragement of new plans for financing care for indigent and low-income groups and the development of ways to take dental care to disadvantaged groups such as the chronically ill, the aged, and the handicapped.

Of these, highest priority was given to incremental care for children as the most effective way of trimming the accumulation of dental ills.

Division proposals included eight demonstration incremental care programs. These would have provided the data on costs, treatment needs, and manpower requirements which State and local agencies must have before undertaking care programs on a permanent basis.

The budget also provided for an expansion of the Division's pioneering studies in new methods of financing dental care. These studies have already done much to encourage the development of adequate coverages. Added research and consultative services would do much to assure that further growth in prepayment would achieve what the Commission regards as its true purpose—access to adequate dental care, access based on need rather than ability to pay.

The Division also proposed additional experimentation in care for the handicapped, ill, and aged. Though its previous activity provided the spur to the inclusion in some dental school curriculums of training in providing this type of specialized care, a great deal more needs to be known before adequate dental health can routinely be brought to those who are physically unable to seek it without assistance.

5. Because too little is known about dental disease and the means of prevention, the Commission calls for an all-out effort by scientific researchers to discover better means of protecting mankind against them.

The Commission points out, however, that unless the epidemiology—the natural history of a disease—can be described as it occurs in population groups, the laboratory and clinical findings on the disease may be of little value. Again, if the epidemiology is known, but public health procedures are lacking, it may be impossible to apply existing knowledge to the solution of such problems. The extent to which the Nation profits from knowledge gained about dental disease is measured by its ability to use that knowledge fully and with purpose.

In addition to continuing and expanding the epidemiological investigations conducted by the Dental Health Center, the Division proposed to strengthen public health activities by offering effective training programs for executive aids. This would, first, be a means of overcoming the dangerous shortage of qualified public health workers. Second, the availability of trained aids would permit dentists and other professional personnel to concentrate upon those duties requiring their highest levels of skills—an economical and effective use of manpower not now possible in most dental health agencies.

The programs included in the preliminary budget estimates permitted constructive action in areas in which only Federal agencies can act with full force and effectiveness. Though they offered no overnight solutions to long-lived and complex dental health problems, they would have served as a well-considered and respectable beginning toward the fulfillment of our ultimate responsibilities.

The curtailment of the budget does not eliminate the need for these programs, it merely reduces and postpones the opportunity for effective solution. The longer we wait to act, the more costly and complex become the problems we face.

COMMISSION ON THE SURVEY OF DENTISTRY

Mr. **Fogarty.** You mentioned the study of the Commission on the Survey of Dentistry in the United States. Would you tell us briefly who was on this Commission and how thorough was their survey? You mentioned the several recommendations; but just give us a brief résumé on that.

Dr. **Galagan.** The Commission, under the chairmanship of Dr. John Perkins from the University of Delaware, was composed of leaders in the United States from within the profession and from without, of laymen, business leaders, physicians, and dentists. The Commission was convened under the aegis of the American Council on Education to look at the whole dental profession and its ability to deal with the dental health problems of this country. After a 2½-year, intensive study of the problem, the Commission made a series of recommendations to the profession for changes in dental education, for expanded research activities, and for improvement in dental public health practices. Some of the recommendations were directed specifically at the Public Health Service and to this Division.

Mr. **Fogarty.** This is considered an excellent report by the schools of dentistry and the American Dental Association, isn't it?

Dr. **Galagan.** That is right. The Commission had keen insight into the problems facing us. The solutions it recommended provide a challenge to us, in the Federal Government and outside, to intensify our efforts to improve the dental health of the people of this country.

SAN FRANCISCO DENTAL HEALTH CENTER

Mr. Fogarty. But now, in view of all these things, I am amazed that you are not asking for an increase for your new Dental Health Center.

Dr. Galagan. Well, Mr. Fogarty, this apparent oversight is probably the result of two things. In the budget which the Public Health Service submitted to the department, there were elements of program expansion which would have been conducted in the Dental Health Center.

And, secondly, of course, at the time this request was put together originally, the Dental Health Center was just in its formative stage.

SPACE DIVISION IN THE CENTER

Mr. Fogarty. I know at the time I was out there at the dedication of the Dental Health Center, there seemed to be some uncertainty about the occupancy of the building. Has that been cleared up yet?

Dr. Galagan. Yes, I think it has been cleared up. We have now 2½ floors of the building available to us; and the other half floor, one wing of the second floor, is in use by other divisions in the Public Health Service.

Mr. Fogarty. What other divisions?

Dr. Galagan. The heart control program of the Division of Chronic Disease.

Mr. Fogarty. I reminded the Surgeon General of the concern that was expressed to me by the dentists in that area and those who are working in the center. They were afraid that, if these other groups started to move in on this building now, that the dentists might eventually be driven out.

But I think that Dr. Terry and Dr. Bauer said that when these programs are staffed up, that they would see to it that the dentists would get sufficient space.

How much does the heart disease program have in that building out there now, Doctor?

Dr. Bauer. The heart control program has six people out there in the Dental Health Center; it is equivalent to about 720 square feet of space.

Dr. Terry. And how many square feet does the dental program have?

Dr. Bauer. There are 10,600 square feet in the whole center, and the dental have, I would say, approximately 8,000-plus. Is that right?

Dr. Galagan. Yes; we have about five-sixths of the space available.

Mr. Fogarty. Mr. Bauer, what was the original agreement regarding the use of this building?

Dr. Bauer. The original agreement was made independently between the three operating divisions of the Bureau of State Services and the Division of Hospitals of the Bureau of Medical Service.

Mr. Fogarty. We never did decide how long that building had been vacant, did we, the other day?

Dr. Bauer. No.

Mr. FOGARTY. It was over 10 years, anyway; we got that in the record last year, but we never did get a specific time; did we?

Mr. KELLY. No, sir.

Dr. BAUER. And I think there was some actual honest misunderstanding as to the agreements here. I think——

Mr. FOGARTY. There is no misunderstanding now. I hope you remember what you said the other day.

Dr. BAUER. No; I——

Mr. FOGARTY. What did you say the other day in answer to my question?

Dr. BAUER. I assured the committee that the occupancy would not deter the progress of the dental health program there and, if so, we would make arrangements for them.

Mr. FOGARTY. All right. There should not be any misunderstanding from here on on this?

Dr. BAUER. That is right.

Dr. TERRY. That is right, sir. And I will back him up on that.

Mr. FOGARTY. All right. I am glad we have got that squared away.

Dr. BAUER. Actually, the public health nurses now occupying this space are just using it as office space.

Mr. FOGARTY. I did not hear any complaints about the nurses.

Dr. BAUER. And the heart control people are mainly in office space there, and they are working there mainly because they are working with the hospital people on clinical investigations.

I do not think there will be any expensive equipment put in here that will cause any problem. They can rearrange it when the time comes.

USE OF BUILDING IN EVENT OF HOSPITAL EXPANSION

Mr. FOGARTY. All right. What happens to this building if the hospital decides in 4 or 5 years that they need additional space?

Dr. BAUER. Mr. Chairman, we are just tenants of the Division of Hospitals, and any decision as to what they do with us in the future will be one of servicewide determination.

Mr. FOGARTY. Well, we may try to correct that in the report. Will it be all right with you if we did?

Dr. BAUER. Yes, sir.

Mr. FOGARTY. In the time that I spent there, I talked with the dentists from all California. There are two groups, one from southern California and one from northern. The American Dental Association was also represented.

They were all happy and pleased about the dedication of this building and its finally being used for these purposes. They all told me they thought that, within 4 or 5 years, their programs should be expanded to occupy the entire building.

Dr. BAUER. Mr. Chairman, I would like to assure the committee that the development of this center and its expansion has the complete support of the Bureau, and any misunderstanding on space here does not reflect anything to the contrary.

RENOVATION ESTIMATE FOR BALANCE OF SAN FRANCISCO UNIT

Mr. Fogarty. What would be required to renovate the balance of the building; do you know, Dr. Galagan?

Dr. Galagan. It would cost approximately $25,000 to renovate the balance of the building, and about $20,000 to equip it. In addition, we feel that in order to make the institution effective, a library is needed.

Mr. Fogarty. I notice on the second floor you had a few booklets but had nothing else, I thought one of the things you would need right away is a library.

Dr. Galagan. Yes, sir.

Mr. Fogarty. How much all together, then?

Dr. Galagan. $140,000 for renovating space, equipping and building a library, with adequate staff.

ORGANIZATION OF SAN FRANCISCO CENTER

Mr. Fogarty. Many of the people that attended that dedication had very high praise for whoever it was responsible for making the dedication such a success. I do not know whether it was you, Doctor, Dr. Nevitt, or who. I do not think I had met Dr. Nevitt before. But all the professional people I talked to were high in their praise of him.

Dr. Galagan. Thank you, sir.

Mr. Fogarty. Now, what additional projects would you initiate there if you had the money, and perhaps more space?

Dr. Galagan. The staff in the center has prepared a series of proposals that could be justifiably started in the center. They divide themselves into two kinds of projects, based on the current programs being conducted there. The prototype studies that we are doing on the natural history of cleft lip and palate are yielding very interesting results. As a matter of fact, we are seeing about a 20 percent higher rate than anyone has ever reported before.

Secondly, we are noticing a very unusual seasonal phenomenon in the occurrence of cleft lip and palate, which suggests that there may be——

CLEFT PALATE RESEARCH

Mr. Fogarty. You said there were, what, 6,000 babies being born every year with cleft palate or lip?

Dr. Galagan. Yes, sir.

Mr. Fogarty. What causes cleft palate?

Dr. Galagan. We do not know.

Mr. Fogarty. Is it sometimes caused at the time of the delivery?

Dr. Galagan. No; it is a developmental defect.

Mr. Fogarty. Oh; it is?

Dr. Galagan. Yes, it starts in the developing embryo. And already we are noticing a strange seasonal peak in the occurrence of these conditions, which would suggest that there may be something connected with the seasons of the year. We see this in our pilot project findings.

So to answer your question, Mr. Fogarty, one of the things we very much want to do would be to expand the study of birth certificates to include a study of the records of all children in the United States who were born with this defect. We estimate that a project of this magnitude would come to something like $320,000 to $325,000.

Mr. Fogarty. Dr. Knudsen started talking about this problem several years ago, but this committee never did a lot about this problem of cleft palate. But it is a very serious problem. What do you think would be the best program in this area?

Dr. Galagan. We would propose to study intensively where these cases are occurring and under what conditions, with the hope of getting leads about causative factors. We propose the detailed study of the birth records of every child in the United States that is reported to have been born with this defect, and some followup in depth.

Mr. Fogarty. You do not have that in the budget this year?

Dr. Galagan. No, sir.

Mr. Fogarty. How much would this cost?

Dr. Galagan. About $325,000.

CLEFT PALATE CORRECTION MEASURES

Mr. Fogarty. What kind of an operation does it entail? Are there many people that can do it?

Dr. Galagan. There are quite a few centers in the United States now for rehabilitative treatment.

Mr. Fogarty. It is a treatment?

Dr. Galagan. Yes.

Mr. Fogarty. There are no surgical procedures?

Dr. Galagan. There are surgical remedies, but our efforts would be to study the epidemiological nature of the problem rather than the treatment.

Mr. Fogarty. Explain that a little more, will you, what you mean by that?

Dr. Galagan. We would study the places of occurrence, the time, the associations which one might develop between where cases are occurring and under what conditions. Knowledge of these facts is absolutely necessary to understand why a disease or a condition occurs.

Mr. Fogarty. I see. What is the treatment?

Dr. Galagan. The treatment is a complex, multidisciplinary approach involving first the closure of the defect surgically, and then, subsequently, a battery of specialists usually come together in teams to provide speech therapy and prosthetic appliances to aid in the closure and in swallowing, with psychologists working with them to help the child adjust to the problem which he has in communication. It is a long——

Mr. Fogarty. How successful is the treatment?

Dr. Galagan. Reasonably successful, considering the seriousness of the defect and the impact which it has on the child's face and on his personality.

Mr. Fogarty. How expensive is it?

Dr. Galagan. Very expensive. One of the real problems in trying to develop adequate programs in this area is the high cost of the specialists who are required to work together to treat a child with this defect over a long period of time so that the child can regain normalcy and so that it can be a real member of society.

Mr. **Fogarty**. Has there ever been any figure arrived at by anybody as to about what it costs, on an average?

Dr. **Galagan**. Sir, I do not know. I would like to have the opportunity——

Mr. **Fogarty**. Would you try to supply it for the record?

Dr. **Galagan**. Yes, sir.

(The requested information follows:)

Estimated total cost for rehabilitation of a cleft lip and/or palate patient, including maintenance care from birth through 18 years of age

Type of treatment	Percentage of children needing treatment	Range of cost per child needing treatment	Range of average total cost birth to 18 years
Hospital cost (average 2 visits per child for correcting cleft(s); surgery, anesthesia, hospitalization	100	$1,050–$1,500	$1,050–$1,500
Orthodontia (average 3 years treatment plus retention)	75	760–1,800	570–1,350
Speech therapy (over a 2-year period)	50	600–1,000	300–500
Speech appliance (new obturators needed as child grows and develops)	20	1,000–2,500	200–500
Routine dental care (from age 3 through 18 inclusive)	100	1,050–1,650	1,050–1,650
Psychological evaluation of child—extensive testing and review	25–40	200	50–80
Counseling of parents and child—psychotherapy (per session=$25)	15	2,000–4,000	300–600
Pediatric care (including ENT consultation and other specialized consultation)	100	[1] 1,800	1,800
Hospitalization costs for dental procedures (not associated with the cleft)	10	100–1,000	10–100
Total		8,560–15,650	5,330–8,080

$100 per year.

Note.—The costs outlined above are based upon estimates of treatment costs per child ranging from allowof $8,560 to a high of $15,450 obtained from public and private agencies and, therefore, a range of costs is given. These estimates are on the conservative side because it is not possible to assign a monetary sum or obtain estimates on such items as case finding, the loss of productive time involved in parents bringing children in for treatment, and transportation.

Mr. **Fogarty**. Now, at what age do they start working on these children?

Dr. **Galagan**. Almost immediately. Within the first year, they begin to repair the defect surgically, and then as soon as the child is able to talk, the speech therapists begin to work with him. As soon as the child is old enough to wear a prosthetic appliance, obturators and other appliances are constructed to enable a child to eat, swallow, talk, and laugh in a near-normal way.

OTHER PROJECTS FOR THE SAN FRANCISCO CENTER

Mr. **Fogarty**. What other projects do you have in mind that might fit into this center in San Francisco?

Dr. **Galagan**. Well, as you know, we are very much interested in the use of teaching machines. Mechanized teaching has real potential in dental schools and dental colleges throughout the country. Much of the dental curriculum is of the kind that could lend itself to mechanized teaching—through television or through the self-teaching machines.

Mr. **Fogarty**. Yes, I know about that.

Dr. **Galagan**. We believe that the expansion of the program of experimentation with mechanized teaching would help in furthering the expanding need for dentists and for dental schools.

If we do go into an expanded construction program for dental schools, there will be a marked shortage of faculty for these institutions. We believe the utilization of mechanized teaching in the basic sciences and in dental science techniques will help resolve this anticipated shortage of dental faculty. An expansion of our experimental program of mechanized teaching we think would be most appropirate.

EXPERIMENTAL TEACHING

Mr. Fogarty. You are asking for $120,000. This is a new item, is it not, for experimental teaching?

Dr. Galagan. Yes, sir.

Mr. Fogarty. Does this approach meet with the approval of the dental schools?

Dr. Galagan. Oh, yes. The American Dental Association 2 years ago established policy through its house of delegates encouraging dental schools and Federal agencies to experiment with the functions of auxiliaries.

Mr. Fogarty. Will you explain this a little more, how you go about this, and just what do you think you would gain by it?

Dr. Galagan. Dentists in the past, and today, Mr. Fogarty, are trained to provide most of the services with their own hands. The dentist has not been trained to delegate functions to his auxiliary personnel in the way that the physician has. This may be largely due to the fact that the dentist has worked in his own office, and the physician as a result of working in the hospital has learned to work with auxiliaries and has been forced to delegate functions to them.

However, with the increasing demand for the dental services and the increasing shortage of dentists, the dental profession has come to realize that it, too, must begin to develop more proficient auxiliaries and must delegate more functions to them. Hence this policy statement of 2 years ago and the urging of the American Dental Association and the American Association of Dental Schools that there be experimentation with the functions of auxiliaries.

We would see it working something like this. We would take existing dental auxiliary personnel—that is, the hygienist and other personnel already trained—and by a series of operational situations determine how much further one may go in delegating to them operations both within the mouth and outside the mouth, which will free up time for the dentist to supervise other auxiliaries. If successful, every dentist in the work force will have an increased productivity per work hour by the use of less highly skilled and less expensive personnel to augment his services.

Mr. Fogarty. What happened to that study that was carried on in Rhode Island several years ago, in the city of Woonsocket, R.I.? Was that not on chair-side assistants?

Dr. Galagan. Yes. That was the prototype of a program which later led to an experimental program in the dental schools to teach students how to use assistants. It is now a fully developed grant program which we administer for the National Institute of Dental Research, which educators say is having a tremendous impact on the teaching of dental students. The students themselves are more productive and able to move faster and more quickly through their clinical curriculum. It probably has been the most significant development in the field of dental education in recent years.

DIFFERENCES IN DENTAL PERSONNEL

Mr. FOGARTY. What is the difference between a hygienist and a dental assistant?

Dr. GALAGAN. A hygienist is licensed by law and registered to practice has an academic degree and is a professional person; whereas an assistant is a vocational person, who to date, anyhow, has been trained largely in vocational schools or taught in dental offices on the job.

Mr. FOGARTY. Yes. What do they do? Or tell me what is a hygienist?

Dr. GALAGAN. Her primary job is to provide oral prophylaxis and to assist the dentist in the management of the office. But there is a general feeling that this is too limited a function. And that is why the urge to experiment with their functions—to broaden their responsibilities.

Mr. FOGARTY. What is the difference between a dental nurse and a hygenist?

Dr. GALAGAN. Well, a dental nurse would be comparable to a dental assistant.

Mr. FOGARTY. I see.

Dr. GALAGAN. The term dental nurse is probably a misnomer. A dental assistant is the person who works with the dentist at the chair, providing an additional pair of hands to him to assist in getting his job done.

Mr. FOGARTY. Many of them do not go to a vocational school, is that not right?

Dr. GALAGAN. That is right. But if the developing pattern of practice which we foresee does come about, we are going to need many more trained dental assistants who have completed courses that have been approved and accredited by appropriate agencies. Unless there is experimentation and a solidification of the functions which these people can perform, an unscheduled and unrestricted pattern of practice is apt to grow which really would be undesirable.

Mr. FOGARTY. That is quite a big program. Do you think you can do all the things you want to do for $120,000?

FACILITIES FOR THE EXPERIMENTAL TEACHING PROGRAM

Dr. GALAGAN. The $120,000 will permit us to employ faculty and purchase equipment, textbooks, and that sort of thing.

Mr. FOGARTY. Well, what else do you really need, then, after you get the faculty?

Dr. GALAGAN. Well, in the Public Health Service's original request to the Department we asked for $291,000 for this project.

Mr. FOGARTY. What was the other $171,000 to be used for?

Dr. GALAGAN. For the facility.

Mr. FOGARTY. You do not have a place to perform this work at this time?

Dr. GALAGAN. No yet; no.

Mr. FOGARTY. Where would you get the space?

Dr. Galagan. Well, the problem we are faced with in the development of experimentation of this kind is a unique one, in that we would like to have professional sanction—support from the dental schools in the area, and from the State board of examiners which controls the practice of dentistry in the several States. Our original plan called for doing this at the center in San Francisco. We understand the State board of examiners in California has not been very receptive to this idea. After considerable exploration, we are tentatively thinking of the Detroit area as the possible site for this project.

Mr. Fogarty. Do you have any space in Detroit?

Dr. Galagan. No, sir; not at the present time.

Mr. Fogarty. Is there any space vacant?

Mr. Kelly. I do not know.

Dr. Terry. Mr. Chairman, I think there is some potential space available.

Mr. Fogarty. I have just been reminded we discussed this the other day. There is vacant space in the nurses home.

Dr. Terry. Which is partially occupied by other things at the present time.

Mr. Fogarty. Would this be satisfactory space?

Dr. Galagan. We do not think so, Mr. Fogarty. The nurses home is not located well, for one thing, for the kind of a program we envision. We will have to have access to a fairly large volume of patients, and the hospital is out at Grosse Point in suburban Detroit, where transportation would be a real problem.

Mr. Fogarty. I have never been out there.

Dr. Galagan. We do not think it would be an appropriate facility for this project.

Mr. Fogarty. How much do you think it would cost to rent additional space for this?

Dr. Galagan. We have been looking at the cost of renting space in several metropolitan areas around the United States, including Detroit. The first-year cost in Detroit would be about $135,000, after which the annual rental of the space would be about $35,000.

Mr. Fogarty. How many years would this go on?

Dr. Galagan. About 4 years, Mr. Chairman.

Mr. Fogarty. You think it has top priority; you think it will meet a real need?

Dr. Galagan. This project is one of the most significant things that can be pursued to make the dental work force in the United States potentially more productive.

FLUORIDATION OF WATER SUPPLIES

Mr. Fogarty. Do you want to say anything more about the fluoridation of water supplies? I know you are not making much headway. In 1960 there were 2,111 communities; in 1961, 2,181. The number of people served increased from 41,169,000 in 1960 to 41,701,000 in 1961. Is that figure for 1961 still firm?

Dr. Galagan. Yes, sir.

(The full table being referred to follows:)

Status of fluoridation at end of each year 1950–61

Year	Number communities	Population served	Year	Number communities	Population served
		Thousands			*Thousands*
1950	100	1,579	1956	1,583	33,905
1951	368	5,079	1957	1,717	36,215
1952	751	13,875	1958	1,890	38,462
1953	1,007	17,666	1959	1,990	39,628
1954	1,194	22,337	1960	2,111	41,169
1955	1,347	26,279	1961 [1]	2,181	41,701

[1] Preliminary data.

Mr. FOGARTY. That is not much progress, is it?

Dr. GALAGAN. No, sir; it is not.

Mr. FOGARTY. What are you doing about it?

Dr. GALAGAN. Well, as I indicated in my opening statement, we do plan to expand and emphasize our activities in this area by the development of new material, by the development of guide manuals, and by the provision of technical assistance to State health departments and to communities where they are considering fluoridation.

Mr. FOGARTY. Has anybody ever come up with any evidence that this has harmed anyone's health in any way, shape or form?

Dr. GALAGAN. Not to my knowledge.

Mr. FOGARTY. Is there any scientific evidence at all that this might harm anyone?

Dr. GALAGAN. No, sir.

HOME FLUORIDATORS

Mr. FOGARTY. You people have been working on a practical home fluoridator; is that the right name—fluoridator?

Dr. GALAGAN. Yes, sir.

Mr. FOGARTY. What has happened in this area?

Dr. GALAGAN. Last year——

Mr. FOGARTY. The last time we talked about it they were expensive.

Dr. GALAGAN. Yes, sir.

Last year I reported to this committee that, through a contract with the Permutit Co., we were in the process of developing a simple, inexpensive plastic home fluoridator. The company has been successful in perfecting the device, and currently is engaged in trying to implement its use in the Pittsburgh area. Although they ran into some snags during the first 2 months of the program, they reported just within the last week or so that they are now back on the track again. They are offering this device to families who live in rural areas for $1.95 a month, which would add up to a little less than $24 a year.

Mr. FOGARTY. Then they would take care of it, you mean?

Dr. GALAGAN. Yes.

Mr. FOGARTY. What care does it need? They look at it once a month?

Dr. GALAGAN. They would install the device and then provide periodic replenishment of the supply.

Mr. FOGARTY. How often does it need replenishing?

Dr. GALAGAN. The company which is engaged in this endeavor hopes that it will not be necessary more than once a month in order to reduce the costs of maintenance.

FLUORIDATION OF SCHOOL WATER SUPPLIES

Mr. FOGARTY. Now, what about a school in a small town?

Dr. GALAGAN. We have some experimental programs of that nature where we are fluoridating school water supplies at higher concentrations.

Mr. FOGARTY. Are they expensive?

Dr. GALAGAN. No. This is a very simple approach to——

Mr. FOGARTY. Who would look after it, the State department of health?

Dr. GALAGAN. Usually the local health department, in conjunction with the school.

Mr. FOGARTY. Suppose you are in a town where there is no health department? I live in a town where they do not have any health department, but we have two schools.

Dr. GALAGAN. We have used the science teachers in the school itself on a part-time basis to supervise the operation of the instrument.

Mr. FOGARTY. We have some schools that do not have science teachers. What do you do then? The State health department, I would guess, would cooperate?

Dr. GALAGAN. I think in most health jurisdictions in the country that would be possible.

Mr. FOGARTY. I am thinking of schools in the lower grades that do not have science teachers.

Dr. GALAGAN. The sanitarian in the local health department could do this very easily, Mr. Fogarty.

Mr. Fogarty, may I add one thing for the record on home fluoridation? These devices are not considered to be a substitute for community water fluoridation. The device that has been perfected would not work in a home in a community which had a water supply. It only would be in a home which has its own private well.

Mr. FOGARTY. That is what I am thinking of. We do not have a central water system. We have wells, both for the home and the schools.

Dr. GALAGAN. We are pursuing vigorously both of these approaches to getting fluoridation to those people not on community water supply systems.

Mr. FOGARTY. How effective would it be where they have it for their school term and then would be out of a school for a couple or 3 months?

Dr. GALAGAN. Well, our experimental programs will be able to answer that question.

Mr. FOGARTY. Do you have any school for which you have been carrying this out for 2 or 3 or 4 years? What is the longest time now?

Dr. GALAGAN. Three years.

Mr. FOGARTY. What do you need, about 5 years?

Dr. GALAGAN. Yes. We will then be able to determine in a more precise way its effect.

Mr. FOGARTY. Do you have anything else you want to say?

Dr. GALAGAN. No, sir.

ADEQUACY OF BUDGET

Mr. Fogarty. You could use some more money, though, apparently.

Dr. Galagan. The budget that we submitted is a good budget.

Mr. Fogarty. That must be the one you submitted to the Department. That might have been a fair one. But what you came up here with, I am sure you are not satisfied with. You could not be, with the other programs that you have in mind.

How much in all would this cleft palate program cost, did you say?

Dr. Galagan. $325,000, approximately.

Mr. Fogarty. A year?

Dr. Galagan. Yes, sir.

Mr. Fogarty. That is what you call epidemiology research?

Dr. Galagan. Yes, sir. That is epidemiologic research.

Mr. Fogarty. These figures are not available?

Dr. Galagan. No, sir.

Mr. Fogarty. Unless you do it, it probably will not be done?

Dr. Galagan. Nobody else in the country is doing it at the present time.

Mr. Fogarty. We have been talking enough about this for a long time. I think we ought to do something about it.

What were some of the other increases you requested but did not get?

Dr. Galagan. The budget that was submitted to the Department was based on our analysis of the proposals that came out of the Commission on the Survey of Dentistry, which provided strong justification for expanded programs at Federal, State, and local levels and by private enterprise as well as Government agencies.

NEED FOR EXPANDED TRAINING

Mr. Fogarty. The American Dental Association is concerned about the training program. They tell me that in this whole field of training they are relatively new—not like the Cancer Institute and the Heart Institute and the Mental Health Institute—but they were treated about the same. They feel that, since they are a new group and just coming up, that they should be given special consideration in the overall program of training. What do you think? It makes sense to me. The Dental Institute is fairly new.

Dr. Galagan. Yes. I think this void exists throughout the whole structure of the profession of dentistry. We need to train more dentists, we need to train researchers, we need to train teachers in dental schools, we need to train dentists how to work with assistants and other auxiliaries; we need to train dentists how to treat special handicapped groups like the aged.

In general, the need for emphasis on training by those in the dental programs of the Public Health Service is a valid and justifiable one.

Mr. Fogarty. Do you have anything else you want to add?

Dr. Galagan. No, sir.

Mr. Fogarty. Thank you very much.

Dr. Galagan. Thank you, Mr. Fogarty.

Mr. Fogarty. The committee will recess now until 10 o'clock in the morning.

Tuesday, February 6, 1962.

NURSING SERVICES AND RESOURCES

WITNESSES

MARGARET G. ARNSTEIN, CHIEF, DIVISION OF NURSING
DR. LUTHER L. TERRY, SURGEON GENERAL
JAMES F. KELLY, DEPARTMENT BUDGET OFFICER

Object classification

[In thousands of dollars]

	1961 actual	1962 estimate	1963 estimate
11 Personnel compensation:			
Permanent positions	544	633	765
Positions other than permanent	1	18	10
Other personnel compensation	5		
Total personnel compensation	550	651	775
12 Personnel benefits	82	106	135
21 Travel and transportation of persons	54	99	94
22 Transportation of things	3	4	10
23 Rent, communications, and utilities	10	8	10
24 Printing and reproduction	8	17	13
25 Other services	18	36	28
Payment to "Bureau of State Services management fund"	20	19	23
26 Supplies and materials	6	7	9
31 Equipment	3	8	16
41 Grants, subsidies, and contributions	6,452	6,604	7,325
Total obligations	7,208	7,559	8,438

Personnel summary

	1961 actual	1962 estimate	1963 estimate
Total number of permanent positions	88	105	126
Full-time equivalent of other positions		3	2
Average number of all employees	81	97	120
Number of employees at end of year	79	117	138
Average GS grade	6.4	6.5	6.6
Average GS salary	$5,776	$5,877	$5,905

Program and financing

[In thousands of dollars]

	1961 actual	1962 estimate	1963 estimate
Program by activities:			
1. Training grants	6,452	6,604	7,325
2. Research, training, and technical services	757	955	1,113
Total program costs [1]	7,209	7,559	8,438
Change in selected resources [2]	−1		
Total obligations	7,208	7,559	8,438
Financing:			
Comparative transfers from other accounts	−7,208		
Unobligated balance lapsing		82	
New obligational authority		7,641	8,438
New obligational authority:			
Appropriation		7,675	8,438
Transferred to "Salaries and expenses, Office of the Surgeon General" (42 U.S.C. 226)		−32	
Transferred to "Operating expenses, Public Buildings Service" General Services Administration (75 Stat. 353)		−2	
Appropriation (adjusted)		7,641	8,438

[1] Includes capital outlay as follows: 1961, $4,000; 1962, $7,000; 1963, $15,000.

[2] Selected resources as of June 30 are as follows: Unpaid undelivered orders, 1960, $9,000 (1961 adjustments, $2,000); 1961, $10,000; 1962, $10,000; 1963, $10,000.

Mr. FOGARTY. The committee will come to order.

We have before us this morning the request for "Nursing services and resources." Miss Arnstein, do you have a statement for the committee?

GENERAL STATEMENT

Miss ARNSTEIN. Yes, sir; I do. With your permission, I would like to submit it for the record and mention a few highlights from this statement.

(The statement follows:)

STATEMENT BY CHIEF DIVISION OF NURSING, ON NURSING SERVICES AND RESOURCES, PUBLIC HEALTH SERVICE

Mr. Chairman and members of the committee, funds appropriated for the nursing services and resources activity enable us to operate a program of planning and promotion for good nursing care for all the people who need to receive it through community health and medical services.

The 1962 increase in training funds appropriated by the Congress is being used to support training in rehabilitation nursing for about 500 nurses. A grant for several short courses to one collegiate nursing school enabled it to establish an entirely new program in rehabilitation nursing. The program holds great potential for the future training of much larger numbers of nurse leaders in this field of nursing. We will soon complete our negotiations with one institution and two universities on contracts for rehabilitation training for staff public health nurses to give direct care to patients.

Our greatest need still is to extend nursing care for the sick of all ages from the hospital to the home. Close to a third of the Nation's incorporated cities of 25,000 and over still lack home nursing services.

We continue to help the States and local health agencies develop the kind of home nursing programs needed by the communities they are to serve. Some entirely new community programs have been started with our assistance.

Even before Public Law 87–395, the Community Health Services and Facilities Act of 1961, passed, we recognized that health departments would have to charge fees for home nursing service. The need for a new way to determine how much the services cost became urgent with the added stimulus of Public

Law 87–395. Existing cost methods for nursing care had proved too difficult for smaller agencies to use. Three months after Public Law 87–395 passed, the Division had developed a method which has already been tested and found valuable as a basis for setting fees for home nursing care. It is being published as a guide and is almost ready for a wide distribution to health departments across the country.

A method to measure the effectiveness of public health nursing has resulted from a study and project only recently completed by the Division. Field tests conducted in six community nursing agencies and health departments showed that almost two-thirds of the patients' nursing needs had been met at the end of about 3 months under home nursing care. These tests also turned up a large number of illnesses and diseases which had not previously been detected or treated, to bear out anew the public health nurse's key role in case finding. The method has been enthusiastically received by those who have used it for evaluation or for supervision. We plan to encourage wide use of this new tool through publication of a report and through consultation.

We have made a beginning in the study to determine more precisely what kinds and how much nursing care is being given to elderly ill. In 1963 we will follow through with a thorough study of care provided in hospitals, nursing homes, and outside these facilities.

An experimental field center has long been needed for studies which cannot be carried out except in a laboratory setting or one which makes daily, close relationships possible with cooperating institutions and agencies. In 1962 we were able to make a small beginning on field center studies. For 1963, we are requesting an increase of $77,000 to enable us to start important studies and demonstrations of new methods of teaching more efficiently; and also a study to determine standards for quality of nursing care.

Nurse activity study methods developed by the Division continue to demonstrate their value in improving patient care. Use of these methods helps hospital administrators cope with problems arising from the still short supply of trained nursing personnel.

Three university hospitals in the South cooperated with the Division this year to conduct studies of nursing in their outpatient departments. This afforded us an opportunity to further develop this study method so that its use can be promoted on a wider scale.

Our study of inactive nurses has been expanded to include at least a dozen States. Each section of the country will be represented in this study to determine the present and future work potential we can expect from this reservoir of trained nurses. Progress also was made in 1962 on the study to determine characteristics and work patterns of the many thousands of nurses employed part time by hospitals.

Our continuing analyses of nursing needs show very clearly that there is a need for stepped-up recruitment, for assistance to schools of nursing, and for assistance to students. The Surgeon General's consultant group on nursing is considering all these needs, but the group has not yet made its recommendations for dealing with the problems. Meanwhile, even conservative estimates of the need for professional nurses are formidably high. Hospitals report about 23,000 professional nurse positions as vacant; we need more than twice that many public health nurses for preventive and therapeutic services in people's homes.

Close to 100 educational institutions now participate in the professional nurse traineeship program by using traineeship grant funds for awards to professional nurses for long-term training. In addition, the need for short-term training has been well demonstrated in the 2½ years since we initiated this program. Short courses have been invaluable for nurse teachers and leaders who are unable to leave their jobs for the time needed to obtain long-term training or for a full academic year. In the first 2 years of operation, grants were awarded for 192 short courses, and about 6,500 nurses took advantage of this opportunity to obtain additional instruction. A survey we made of participants in two such courses revealed that at least three-fourths of these nurses were away from their jobs for the first time for training which lasted as long as 5 consecutive days. We are requesting an increase of $721,000 which will enable us to provide both long-term and short-term traineeships for an additional 1,700 nurses. As directed by the Congress, the traineeship program will be reevaluated in the summer of 1963, and the necessary planning will be done and data gathered this year.

A more comprehensive approach to career development for nursing in the Public Health Service can no longer be delayed if we are to adequately meet our responsibilities to provide leadership in entirely new public health activities as well as in expansions of existing programs. As long as we cannot even cope with personnel losses due to attrition, we cannot hope to handle the intensified demands for highly trained and well-qualified public health nurses in community health and in environmental health. In order to meet increasing demands for nursing care in the home, we also should recruit and train some nurses for assignment to State and local programs to strengthen services. And arrangements such as contracts need to be made to provide preparation for nurses for service in long-term illness, rehabilitation, and care of the elderly. An increase of $120,000 is requested for this purpose, and for a comprehensive analysis and evaluation of nurses supply and distribution, which has not been carried out in the Nation since 1951.

Mr. Chairman, I shall be glad to answer any questions you and the other committee members may have about this program or the budget request.

Miss Arnstein. This was our first full year as a new division in which we combined the programs of the Public Health Nursing Division and the Division of Nursing Resources. It has made planning for and programing for continuity of care from hospital to outpatient clinic to home easier and more efficient, we feel.

NATIONAL STUDY OF NURSING

It has been an eventful year for other reasons. too in that the first broad national study of nursing has been undertaken by the Surgeon General's Consultant Group on Nursing. This is a representative group of health personnel, other citizens, and people interested in health—educators who have medical and nursing interests at heart.

Dr. Alvin Eurich, the vice president of the Fund for the Advancement of Education, is the chairman of this committee. We have not received their recommendations yet, but they are expected later this year.

Mr. Fogarty. When?

Miss Arnstein. They are now saying July 1 the report will go to the printer; so it would be in the hands of the Surgeon General probably June 1.

NURSING CARE AT HOME

In the meanwhile, it is quite clear that the present program of the division should be continued and that certain areas need to be expanded. This past year we have focused much of our attention on the out-of-the-hospital nursing services, particularly care of the sick in the home. Almost one-third of our communities with a population of 25,000 and over still don't have services which will enable the sick person at home to get nursing care. The smaller communities—smaller than 25,000—and the rural areas, with the exception of New England, have almost none of this kind of service.

SPECIAL REFRESHER TRAINING FOR NURSES

There have been some changes this past year or two, with the stimulation of the Community Services and Facilities Act. We are seeing rural communities begin to start this type of service. Wherever these services are offered for the first time the nurses have to have special training because there are so many new things being discovered about restorative services for the chronically ill that, in order to keep up, they have to have refresher courses and special training. For those graduated as much as 10 years ago, it is almost like a new world to see what can be done with the people formerly thought to be hopeless.

The increase in funds for training this year, recommended by this committee, has been used for this purpose, training people who are on the job and also preparing teachers so that our new students can get this training when they start. By the end of this year we expect to have some 500 nurses who have taken short courses in restorative nursing.

The increased demands for nursing care of the sick at home have made it especially important that our nursing services should be used wisely and that we have some kind of a method of assessing the results of the care given. We have developed a method for this and have tried it out in six agencies. During the tryout we found that about two-thirds of the nursing needs of the patients studied were met within a 3-month period. The nurse had been able to help the patient to become independent in relation to these needs, or he had recovered. In addition, data were obtained about the numbers of cases the nurses found in visiting these families and referred to medical care, the number who subsequently got medical care, recoveries, and deaths.

COST DETERMINATION

Health agencies undertaking these new programs also need a method of determining their costs. The present methods that are available, which were developed some years ago by the Public Health Service in collaboration with the National League for Nursing, are too complicated for the rural agency that has two, three, or five nurses or the small city agency. We have in just the last few months developed a simpler method which has been tried out in one State. The State found that it was practical, usable, and is enthusiastic about it. We are now ready to publish a guide so it can be used by local agencies all over the country.

The field center which was established this past year has been an exciting new development for us. We are at this point only exploring the possibilities for future studies. I think you remember that we have only two staff in the center this year, so we are looking to next year to have things happen.

TEAM NURSING

In the meantime, they are working with our own hospital in San Francisco on improving the methods of team nursing. This was at the request of the hospital. There has been a lot of talk about team nursing. It is in all the literature. We all talk as though it existed, but in most hospitals it is a shadow of what it might be. So our nursing consultants are working with our hospital supervisory personnel to make it a reality.

TRAINING NURSES

The rapidly changing medical field makes it essential that supervision of nursing personnel keep up with the newest developments. The professional nurse traineeship program which is administered by this division provides through the long-term traineeships thorough academic training for teachers and supervisors and administrators.

We are asking for an increase of $400,000 this year to increase the numbers of trainees and to take care of the increased costs of tuition. Our average cost of traineeship has gone up slightly each year.

We are asking for $321,000 to increase our short-term traineeships which have proved to be a very effective method of training for those people who cannot take a full year off and go to school.

The Public Health Service has given leadership in these training programs and in other types of nursing programs. In order to do this, we must have on our own staff in the Public Health Service nurse consultants capable of serving in a leadership role. We need to recruit young people of the highest potential and to give them a planned sequence of experiences so that they will have not only the knowledge that they come to us with, but the experience gained in practice over a number of years.

Judgment is based, we all know, on a combination of knowledge and experience.

We now have two nurses who are getting this kind of experience through a sequence of assignments planned to fit their needs and the needs of the Service for future consultants. One of these nurses is in a supervisory job in a local health agency in the State of Washington. The other one is in the State of Ohio on the staff of the State health department as a consultant in chronic diseases, with particular emphasis on expanding the nursing care of the sick-at-home programs in that State. These two are not enough even to take care of the replacement for retirements from the Service—let alone to staff some of our new programs.

We are requesting 13 new positions and $120,900 for the manpower activity.

We feel that with this program of research, application of research, consultation, and training in selected fields, we will continue to help the country meet the nursing needs of its people.

I will be glad to answer any questions you may have.

NATIONAL ORGANIZATIONS FOR NURSES

Mr. Fogarty. How many nursing groups are there in the country? You mentioned the American League of Nursing.

Miss Arnstein. The National League for Nursing and the American Nurses' Association.

Mr. Fogarty. The American Nurses' Association. What other national groups are there, if any?

Miss Arnstein. Those are the two major ones. There is also a national organization of occupational health nurses. Then we work with other groups that are not strictly nursing groups—the American Nursing Home Association, for instance.

Mr. Fogarty. What about the practical nurses? Do they have a national organization?

Miss Arnstein. Yes; they do.

Mr. Fogarty. That is getting to be a sizable organization, isn't it?

Miss Arnstein. Yes, sir.

Mr. Fogarty. It is growing all the time.

Miss Arnstein. Yes, sir.

Mr. Fogarty. How are they getting along with the AMA?

Miss Arnstein. I think very well. They are a part of the National League for Nursing. They are members.

Mr. Fogarty. Are they members of the National League for Nursing?

Miss Arnstein. Yes.

BUDGET FOR 1963

Mr. Fogarty. Your appropriation for 1962 is $7,675,000, and your request for 1963 is $8,438,000—an increase of $763,000, and 16 positions over the amount authorized for 1962.

RESERVE OF 1962 APPROPRIATIONS

You were hit with a reserve, too, weren't you—$82,000 and five positions?

Miss Arnstein. Yes, sir.

Mr. Fogarty. What were those five positions to be used for?

Miss Arnstein. We were going to use them to help develop one or two additional training centers in restorative nursing for short-term rehabilitation courses.

Mr. Fogarty. What do you mean by restorative nursing?

Miss Arnstein. In order to make it quite clear that we are not calling ourselves physical therapists——

Mr. Fogarty. I see.

Miss Arnstein. We are using the other term.

Mr. Fogarty. I thought that this was one of the most important phases of medical care that had been developed in the last several years. I thought this tied in with your opening statement about how you were concerned with getting the patient from the hospital to the clinic to the home.

HOME CARE PROGRAM

How is your program in home care going? What are you doing in this area?

Miss Arnstein. With the moneys we have this year, we have made contracts with institutions, one, a hospital, that is particularly able to teach chronic nursing.

Mr. Fogarty. Which one?

Miss Arnstein. Rancho Los Amigos in Los Angeles, it is one of the outstanding chronic disease hospitals where they were able, with additional funds, to put on a teaching staff so they could take public health nurses from the whole area, not just California. The University of Miami is doing the same kind of thing in short-term courses, and so is Boston University.

In the title II traineeship program we have stimulated a number of universities to put on short-term intensive courses in rehabilitation nursing primarily for nurse teachers; so with the moneys we have had——

Mr. Fogarty. What do you mean "nurse teachers"?

Miss Arnstein. The title II traineeships support training for teachers in the newer phases of rehabilitation nursing, and then they in turn are in a position to teach the basic students and others.

Mr. FOGARTY. With the new methods that have been developed, there is a great need for this, isn't there?

Miss ARNSTEIN. Yes, sir.

Mr. FOGARTY. I don't feel very well about this cut of $82,000 and five positions. This committee made quite a point in its report last year about building up this program for out-of-the-hospital care throughout the Public Health Service, because we were convinced, from the testimony last year, that this sort of a program could reduce hospital expenses dramatically.

Do you still believe that it can reduce hospital costs?

Miss ARNSTEIN. Yes, sir.

Mr. FOGARTY. But if you don't have the funds to carry out the program, you are just going to do a lot of talking about it, with no action. I would think this particular phase of your program would certainly be exempted from what the President said when he gave this advice to every Cabinet officer:

> I much prefer that obligational authority remain uncommitted where there is any doubt that expenditures would yield substantial returns to the national interest.

Isn't this an area where we will get substantial returns to the national interest by developing this particular kind of a program?

Miss ARNSTEIN. I think we must continue to develop them, yes.

Mr. FOGARTY. It would yield substantial returns to the national interest?

Miss ARNSTEIN. Oh, yes.

TRANSFERS TO THE OFFICE OF THE SURGEON GENERAL

Mr. FOGARTY. Are you transferring anything to the Office of the Surgeon General?

Miss ARNSTEIN. Yes, sir. We have been carrying the salary, travel, and other expenses of the chief nurse officer. They are being transferred to the Office of the Surgeon General.

Mr. FOGARTY. This is similar to the explanation you made yesterday, Doctor. That goes for all these transfers?

Dr. TERRY. That's right, for the chief professional officer and the supporting staff.

Mr. FOGARTY. I think you went into that in some detail yesterday; so that is sufficient.

USE OF ADDITIONAL APPROPRIATED FUNDS FOR 1962

Last year we gave you an additional $300,000 more than you asked for. What are you doing with these funds?

Miss ARNSTEIN. These are the funds that are being used for the contracts with Rancho los Amigos, the University of Miami, and Boston University in the short-term training courses.

Mr. FOGARTY. Did they take this reserve out of the additional funds that we gave you?

Miss ARNSTEIN. Yes, sir. That was our only increase.

TRAINEESHIP GRANTS

Mr. Fogarty. You are asking for an increase of $721,000 for traineeship grants. I think this is one of the most popular programs that you have. I have talked with many people who would like to take advantage of this program. But we never have appropriated sufficient funds.

Those who have taken this training have written me very complimentary letters. I think you have seen some in the past that I have received.

You say on page 187: "The fact is that less than one-half of the need is met by this program." How will this increase change the situation? I am surprised that you are meeting half of the requests that you have. I didn't know you were doing that well—not from the people I talk to.

Miss Arnstein. We are not meeting half the need.

People have to be released, and a given hospital can't release all three supervisors, let's say, the same year. So one year they release one and she comes back and the next year they release the next one. So you can't send everybody to school who wants to go in the same year.

We think that, with an increase of $721,000 next year, we will be doing pretty well in meeting the needs of the people who can come.

BENEFITS OF THE TRAINEESHIP PROGRAM

Mr. Fogarty. I am sure you won't meet the needs as far as my area is concerned for those who want to go to Boston University. Tell us about the advantages of this program—how you see it improving hospital services and what benefits are derived from it.

Miss Arnstein. The long-term traineeships are a full academic year, and sometimes 12 months; and some of the universities are saying they would like the students to stay 15 months now in order to get the full benefit.

These are to get fundamental knowledge on which the person can build in the future, can grow, as our medical science advances. For instance, a teacher of medical nursing wants to learn more than what today is being taught about medical nursing. She has to learn the basic sciences on which it is pinned so that, as she goes back to her job in teaching, she can by reading the literature and by going to a lecture occasionally keep up with the advances in science because she has the basic foundation.

The supervisor in a hospital, for instance—and I would like to say a public health agency, too—learns not only how to help her own staff grow on the job and to do a job more effectively, but she learns how to get the right person in the right job at the right time.

We had a beautiful example in our division yesterday. Yesterday afternoon we were discussing a study that has been done in two outpatient departments. In one outpatient department the nurses are spending more than half their time on patient care activities; in the other, they are spending half their time on clerical activities.

One is a better administered and supervised department than the other. It may need only a reorganization of the department in which they are spending half their time on clerical duties. At the same time, I hate to say, the clerks are spending about a third of their time unoccupied. So it is obvious that what is needed is a readjustment of assignments and better administration and supervision.

The same types of things happen in our inpatient units. So good administration and good supervision can see to it that the person does the job for which he is best fitted and that nurses get to patients, which is what we are after.

In the short-term courses they get a "quickie," you might say, concentrated in a week or 2 weeks, in which they don't get the same kind of fundamental knowledge for future growth but they get some tools to work with right now.

Some of the universities and the State nursing groups who have put on these short-term courses have developed a very good system which requires a little more money, and this is one of the reasons we want more funds for this short-term training program.

For example, a short-term course is planned so that the same group of nurses returns two or three times during the year. Let's say that they come in in October for a week. Let's take for our example team nursing. They discuss how they can get it started in their own hospital and how they can make it operate.

Mr. Fogarty. What is team nursing?

CONCEPT OF TEAM NURSING

Miss Arnstein. Team nursing means that the professional nurse has a group of patients, perhaps 16 patients, under her aegis. She has assigned to her perhaps one, maybe two, practical nurses, an aid or two aids, or an orderly. This team together takes care of the 16 patients. Sixteen patients would be too many for one person. She directs this team in a way so that she selects patients or the activities for certain patients that she should do. She selects the patients that the practical nurse can safely and well take care of, and perhaps she gives the aid jobs which may be partly in the utility room, partly in the diet kitchen perhaps, filling water pitchers for the patients, or making empty beds.

So the team together takes care of the 16 patients; knows all 16; can give supportive help to all 16 even if they are just going in to fill a water glass. They know all about the patients. They all know what is trying to be accomplished for them from a nursing point of view.

Mr. Fogarty. Do you think that is good?

Miss Arnstein. Yes. We think when it works, it is wonderful. These nurses then, come for a week in October. They go home at the end of the week with an assignment that they are going to work out in their hospital. Then they come back in February, let's say, and discuss how well this assignment worked. They bring up the difficulties and through discussion found it didn't work for this and this reason. So together they try and work out another approach. Then they go home and try it again. They come back in May and perhaps they have a success story, and then they learn something for the next year that they want to try.

This type of continued education has proved to be extremely worthwhile.

Mr. Fogarty. Is this pretty well accepted by all the professional groups, this short-term training program?

Miss ARNSTEIN. Not as a substitute for long-term, but as a supplement to long-term, yes.

Mr. FOGARTY. It seems to me that I have heard some problems in the past about this from some of the professional groups.

Miss ARNSTEIN. Quite honestly we have heard, I would say, none in the past year and a half. They were scared of the program before it started.

Mr. FOGARTY. Maybe that is it.

Miss ARNSTEIN. But I really think we haven't heard a single fear expressed since it has been going.

NEEDS IN THE AREA OF NURSES TRAINING

Mr. FOGARTY. That is good. What do you think the need is in this area? What kind of a program would you like to see to meet the need?

You can supply that for the record, what you think the needs are, how many positions and how much in funds it would take, and how many years we ought to plan for it and how much it would cost per year.

Miss ARNSTEIN. Do you mean the total need for nursing education?

Mr. FOGARTY. Whatever way you want to construe the word "need." I will let you decide that for yourself. Then we will ask the American Nursing Association, when they are here, what they think of your recommendations.

Miss ARNSTEIN. The Surgeon General's consultant group on nursing is studying the total.

Mr. FOGARTY. Their report is coming in between June and July?

Miss ARNSTEIN. Yes.

Mr. FOGARTY. In view of that, maybe we should wait for their report, then.

Mr. ACKERMAN. I would like to point out that this program got all the money it asked for, all the way.

Mr. FOGARTY. This is one of the few in the entire budget. Are you sure about that?

Mr. KELLY. You mean as far as the traineeships, long-term and short-term training, are concerned.

DEPARTMENT'S REDUCTION IN ORIGINAL REQUEST

Mr. FOGARTY. The Department cut you a couple of hundred thousand dollars. What was that for?

Miss ARNSTEIN. Part of the cut was for what we call career development—these young nurses we bring in and give planned assignments to and who serve the Public Health Service itself, and also the country, while they are getting these planned assignments.

Part of the cut was for one position and some travel money for preparation for the evaluation conference for the title II traineeship program, which in the law must be held in fiscal 1964.

Part of the cut was for what we wished to do in intramural research studies of nursing.

RESULTS OF APPLICATION OF STUDY METHODS

Mr. FOGARTY. You say on page 190:

> The Division has clearly demonstrated in the past few years that application of its various study methods is a way of improving patient care. Although some 30 public health agencies and some 200 hospitals have used these methods, this is less than 5 percent of those who could benefit.

Is it that low? I had no idea it was less than 5 percent.

> There are not adequate nursing services for patients in hospitals or in their homes.

I think everybody agrees with that, don't they?

Miss ARNSTEIN. Yes, sir.

IMPROVEMENT OF NURSING PRACTICES

Mr. FOGARTY. Your next increase is $77,000 and eight positions for improvement of nursing practices. This is the field in which the San Francisco Experimental Field Center works, isn't it?

Miss ARNSTEIN. Yes, sir.

Mr. FOGARTY. Tell us about the activities in this field and what more you plan to do in 1963 if you get this increase.

Miss ARNSTEIN. Part of it will go for basic nursing studies, which always must precede the development of teaching guides and manuals which can be applied all over the country. Each one of our present study guides has been preceded by as much as 3 years' study before we are ready to promote it across the country.

We wish to make some studies of referral of patients from hospitals to health agencies outside of hospitals. We would like to develop a guide which hospitals could use on how to select these patients, how to identify them, who could benefit from this kind of home care.

This is one of the things we would like to do in the San Francisco Field Center.

Then we would like to get much more evidence of the improvement that patients show with improved nursing care. We think this would be one of the ways to cut down waste of nursing skills.

Mr. FOGARTY. Give me one example of that. Can you think of one offhand?

Miss ARNSTEIN. Yes; I can. I can give you a very peculiar one, but it happened to have been told to me recently.

A patient with a very peculiar and high blood pressure was getting one of the new drugs which they were trying out. They had a result that they couldn't understand because some days the blood pressure was kept down by this drug; and then other days, for no reason that they could see, it would pop up.

The head nurse was interested in this, too. She noticed that the days it popped up were the days that a certain nurse took care of this patient. So she went and talked to the patient.

The patient said, "Oh, I can't stand that nurse. She doesn't think I am sick. She doesn't really believe I am sick, and she doesn't take care of me the way the other nurse does."

The head narse looked into it. She found the other nurse took more time; she didn't hurry the patient. When she got her out of bed, she let her sit on the edge of the bed a little while she massaged her legs. She sat with her for a minute or two when the patient got into her chair to see that she wasn't faint.

All of this meant that it was helpful to the patient, and that the patient felt supported and cared for.

When it was brought to the attention of the physicians who were trying the new drug, they were amazed to think that nursing care could actually override the effect of the drug.

MANPOWER RESOURCES PROGRAMS

Mr. FOGARTY. That is a good example. Your other increase is $120,900 and 13 positions for manpower resources programs.

Tell us what you are doing now and what you plan for 1963, and tell us where the most serious shortages are now.

Miss ARNSTEIN. At the present time we have the two positions. One is a nurse who is helping a local agency out while their supervisor goes to school to get some additional training. Our nurse is substituting as a supervisor for a year there. The other one is doing the same thing in a State health department as a chronic disease consultant. The additional positions we have requested we would expect to be used primarily for similar types of assignments to the States and local communities.

Often a local community can recruit after they get started. It is one of these vicious circles. They need somebody to get started with. In order to get started, they need somebody. They request us for the assignment of somebody for a short period. That person is with them for a year or 2 years. She develops the program. It takes on prestige, and then the local agency is able to recruit its own people.

We would assign these nurses to agencies that are developing new nursing care of the sick programs primarily, either on a State or local level.

MALE NURSES

Mr. FOGARTY. What do you think of male nurses?

Miss ARNSTEIN. I think they are fine.

Mr. FOGARTY. Do you?

Miss ARNSTEIN. Yes, indeed.

Mr. FOGARTY. What are you doing about stimulating interest in this area?

Miss ARNSTEIN. We have done in our own Division very little about general recruitment. The National League for Nursing, with its careers committee, has taken on the major responsibility for recruitment. We have each year given a little suport in the form of an exhibit, and we have a representative on their careers committee so that we are tied in very closely with them in making their plans.

Mr. FOGARTY. You don't discriminate against a male nurse?

Miss ARNSTEIN. No, we do not.

In this country they have been used primarily in psychiatric hospitals and surgical units of general hospitals. But in some countries abroad, they are used much more than we have used them; they are head nurses, they are administrators of nursing services in hospitals, and they are teachers in basic schools.

Mr. FOGARTY. Mr. Denton?

Mr. DENTON. No questions.

Mr. FOGARTY. Mr. Laird?

Mr. LAIRD. I have no questions.

Mr. FOGARTY. Mr. Michel?

Mr. MICHEL. No questions.

Mr. FOGARTY. Do you have anything else you would like to say?

Miss ARNSTEIN. No, sir. Thank you.

TUESDAY, FEBRUARY 6, 1962.

HOSPITAL CONSTRUCTION ACTIVITIES

WITNESSES

DR. JACK C. HALDEMAN, CHIEF, DIVISION OF HOSPITAL AND MEDICAL FACILITIES

DR. LUTHER L. TERRY, SURGEON GENERAL

JAMES F. KELLY, DEPARTMENT BUDGET OFFICER

Object classification

[In thousands of dollars]

		1961 actual	1962 estimate	1963 estimate
11	Personnel compensation:			
	Permanent positions	1,480	1,571	1,957
	Positions other than permanent	11	12	12
	Other personnel compensation	5		
	Total personnel compensation	1,497	1,583	1,969
12	Personnel benefits	125	136	160
21	Travel and transportation of persons	144	168	188
22	Transportation of things	5	6	6
23	Rent, communications, and utilities	17	19	20
24	Printing and reproduction	25	37	39
25	Other services	27	118	118
	Payment to "Bureau of State Services management fund"	24	58	64
26	Supplies and materials	16	25	26
31	Equipment	15	38	30
33	Investments and loans	1,450	500	500
41	Grants, subsidies, and contributions	186,320	199,444	196,100
	Total obligations	189,664	202,132	199,220

Personnel summary

	1961 actual	1962 estimate	1963 estimate
Total number of permanent positions	196	220	250
Full-time equivalent of other positions	4	4	4
Average number of all employees	182	191	232
Number of employees at end of year	183	224	254
Average GS grade	9.1	9.3	9.5
Average GS salary	$7,919	$8,034	$8,150

Program and financing

[In thousands of dollars]

	1961 actual	1962 estimate	1963 estimate
Program by activities:			
1. Grants:			
(*a*) Construction of hospitals, etc., under pt. C of the Public Health Service Act	149,113	152,827	130,000
(*b*) Construction of medical facilities under pt. G of the act:			
(1) Chronic disease hospitals	4,173	9,375	20,000
(2) Diagnostic or treatment centers	10,021	7,932	16,000
(3) Rehabilitation facilities	9,317	9,120	8,000
(4) Nursing homes	14,132	12,989	19,000
Total construction grants	186,756	192,243	193,000
2. Hospital and medical facility research	1,217	8,117	4,200
3. Operations and technical services	1,714	1,772	2,020
Total program costs [1]	189,687	202,132	199,220
Change in selected resources [2]	−23		
Total obligations	189,664	202,132	199,220
Financing:			
Comparative transfers from other accounts	−1,719	−8,117	
Unobligated balance brought forward	−127,051	−124,515	−142,000
Unobligated balance carried forward	124,515	142,000	119,000
Unobligated balance lapsing	790		
New obligational authority (appropriation)	186,200	211,500	176,220

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[1] Includes capital outlay as follows: 1961, $16,000; 1962, $38,000; 1963, $30,000.

[2] Selected resources as of June 30 are as follows: Unpaid undelivered orders, 1960, $22,000 (1961 adjustments, $22,000) 1961, $21,000; 1962, $21,000; 1963, $21,000.

General Statement

Mr. **Fogarty**. We have before us now the request for the hospital construction activities. Dr. Haldeman, do you want to file your statement and summarize it, or do you want to read it?

Dr. **Haldeman**. I will be very glad to file it and summarize the statement.

(The statement follows:)

Statement by Chief, Division of Hospital and Medical Facilities, on "Hospital Construction Activities, Public Health Service"

Mr. Chairman and members of the committee, the purpose of the Hill-Burton program is to assist the States in providing adequate hospital and medical facility services to the people. The basic methods used in operation of the construction program have not changed. First, State agencies must develop a comprehensive plan designed to meet the hospital and medical facilities needs of the States; second, construction projects are approved in the order of priority. Research and demonstration studies are carried out as a means of developing new organizational patterns of providing hospital services and improving the operation, utilization, and design of health facilities. In addition, the Congress broadened the research program during the last session to authorize a program of grants for experimental and demonstration construction and equipment projects.

1963 ESTIMATE

The total request for hospital and medical facilities construction, for the research, demonstration, and experimental construction programs, and for salaries and expenses is $176,220,000. This amount will provide $100 million for construction of hospitals and public health centers; $70 million for the construction of nursing homes, diagnostic or treatment centers, rehabilitation facilities, and chronic disease hospitals; $4,200,000 for research and demonstration studies and experimental construction; and $2,020,000 for salaries and expenses.

PROPOSED PROGRAM FOR 1963

Construction

The $170 million requested for construction purposes will enable the States to start the construction of approximately 700 health facility projects involving over 22,000 hospital and nursing-home beds and almost 250 units for various types of outpatient care. This projection is based on the assumption that State agencies will program the construction of the different kinds of health facilities during 1963 along the same lines as construction was programed during 1959 and 1960.

Substantial progress has been made during the last 15 years in reducing the deficit of general hospital beds and facilities, particularly in rural areas. At the same time, however, State agencies report that many areas require additional general beds and facilities and that the demand of communities for Hill-Burton assistance for general hospital facilities is still acute. While a portion of this need and demand may be attributed to the annual population increase of 3 million persons, it seems quite clear that a deficit of general hospital services and beds still exists.

The same substantial progress, however, has not been made in the construction of other health facilities, such as long-term care, rehabilitation, and outpatient facilities. For this reason, the full amounts authorized to be appropriated for nursing homes, chronic disease hospitals, diagnostic or treatment centers, and rehabilitation facilities are included in this budget request. Your approval of this request will continue the effort being made to bring long-term and outpatient care facilities into better balance with general hospitals.

Facilities and beds constructed under the Hill-Burton program

As of December 31, 1961, approximately $1.6 billion in Federal funds had been committed to 5,888 projects costing a total of more than $5 billion. Of these projects, 4,381 have been completed, are in operation, and are serving their communities; 1,249 are under construction; and the remaining 258 are in the preconstruction stages. Completion of these projects will add 248,809 hospital and nursing-home beds, and will result in the construction, expansion, or remodeling of 1,014 public health facilities, 425 diagnostic or treatment centers, and 202 rehabilitation facilities.

Research

The amount of $4,200,000 is requested for the expanded research program. A portion of these funds will be used for the construction of units in health facilities which are experimental in nature and hold promise of improving the functional layout or operational efficiency of such facilities and reducing the costs of construction, maintenance, or operation. However, the bulk of the funds will be used for continued research, experimentation, and demonstration studies relating to hospital services, facilities, and resources. These research activities are necessary to bring the physical plant, equipment, and organizational and operational aspects of our health facilities up to peak efficiency. We place great emphasis and a high priority on our research and demonstration program because we are convinced that these activities will eventually lead to dramatic improvements in hospital organization, operation, and design. For example, these funds have supported major studies regarding progressive patient care and the concept is rapidly being accepted as an improvement in hospital organization. While additional research remains to be done in the field of progressive patient care, it gives promise of improving the utilization of scarce professional skills and at the same time improving the quality of patient care.

HIGHLIGHTS OF PROGRAM PROGRESS AND PLANS

As the number and complexity of health facilities increase, it becomes more and more apparent that the planning of health facilities should be given greater attention. As a first step in providing the leadership necessary to improved planning, five ad hoc committees, composed of outstanding hospital and health authorities, have been established for the purpose of developing general planning principles. The report of the Surgeon General's Ad Hoc Committee on Planning for Mental Health Facilities was published in January of 1961. The report of the Ad Hoc Committee on Areawide Planning for Hospitals and Related Facilities, which was jointly sponsored with the American Hospital Association, was published in July of 1961. The three ad hoc committees established to develop planning principles for long-term care facilities, rehabilitation facilities, and tuberculosis hospitals have not yet completed their work.

The reports of the two committees which have completed their work represent milestones in the fields of areawide planning and planning of mental health facilities, and we are confident that the reports of the other three committees will be of equal significance. The committee reports, however, represent only the first step in updating planning principles. These general principles must be reduced to detailed operating procedures and guidelines if they are to be of maximum usefulness to States, area planning councils, and communities. Accordingly, we have given a high priority during 1963 to this program as a means of making the greatest impact on the need for comprehensive and coordinated planning for all types of health facilities. In my opinion, this activity will have a profound impact on health facility planning and construction for many years, and represents a forward step in insuring that Federal funds are expended only for those facilities which are needed and of the highest priority.

OPERATIONS AND TECHNICAL SERVICES

The amount of $2,020,000 is requested for salaries and expenses. These funds will provide 24 additional positions which are necessary for the following purposes:

1. Providing the basic staff necessary to regional office operation. We have delegated responsibility to our regional offices for the (*a*) review and approval of applications, architectural drawings, and equipment lists; (*b*) review of State plans prepared by State agencies; (*c*) maintenance of surveillance over such matters as the payment of prevailing wage rates to construction workers and the inspection of construction, and (*d*) certification of construction payments to the Treasury Department. In addition—and perhaps of greater importance from the workload point of view—regional personnel must provide technical assistance and consultation to State agencies and communities regarding the planning, design, and construction of all types of health facilities. In a recent survey made of various regional offices we found that, in several offices, the workload was beyond the capacity of the present staff, if we are to carry out the basic requirements of the regulations and administer the program efficiently. Accordingly, several additional positions are requested to provide the basic staff necessary to regional office operation of the program. This survey also showed that an insufficient Hill-Burton workload existed in our Denver regional office

to maintain the several professional competencies required for program administration. For this reason, we transferred Hill-Burton activities in Denver to the San Francisco regional office which enables us to use scarce professional personnel on a more efficient basis.

2. As indicated previously, we have assigned a high priority to improvements in the planning of health facilities during 1963. Additional staff is required to refine general planning principles for the various kinds of health facilities and reduce them to detailed operating procedures and guidelines for use by State agencies, area planning councils, and communities. In addition, we plan to assign additional personnel to regional offices and, in some instances, to State agencies, as a means of stimulating and encouraging the greatest amount of State and local effort in improving the planning of health facilities.

3. Additional staff is also requested for the purpose of developing new and updating existing guide material relating to the design, construction, equipping, and operation of health facilities. Guide material contributes significantly to the success of any Federal-State program, and in a construction program, such material is a key element to successful program administration. The extensive utilization of these guide materials both here and abroad adds additional emphasis to the necessity of keeping them up to date.

CONTRIBUTION OF THE HILL-BURTON ACT

Dr. HALDEMAN. Thank you, Mr. Chairman and members of the committee. The Hill-Burton program continues to make significant contributions to the health of our Nation. As of December 31 we had more than $1,600 million committed to some 5,888 projects, costing a total of over $5 billion.

Completion of these projects will add approximately a quarter of a million hospital and nursing home beds. In addition, there are over 1,600 projects for ambulatory and rehabilitation care.

Hill-Burton financed facilities are also making a significant contribution to our national economy. The 5,800 projects will employ an estimated 230,000 persons and contribute an estimated $1 billion annually to the gross national product as a result of payroll and plant operation.

BUDGET REQUEST, 1963

Our request for fiscal 1963 is $176,220,000. This will provide $100 million for our part C program for hospitals and health centers; and will provide $70 million for our ambulatory care and rehabilitation facilities; $4,200,000 for our research activities; and $2,020,000 for the operations and technical services.

FORMULA GRANTS

The $170 million requested for formula grants for construction will provide approximately 700 health facility projects, with 22,000 hospital and nursing home beds, and 250 units for ambulatory care and rehabilitation.

We have made considerable progress in the general hospital category in rural areas. We have not made the same progress in regard to the modernization needs of our facilities in our more densely populated areas; nor have we made the same progress in long-term ambulatory care and rehabilitation areas.

The full amounts authorized for our nursing home, chronic disease, diagnostic or treatment centers, and rehabilitation categories have been requested. This is an effort to continue to try to bring these facilities into better balance with general hospitals.

RESEARCH ACTIVITIES

The amount of $4,200,000 is also requested for our research activities. If we are going to put a damper on our rising hospital costs, we need better organizational patterns for the provision of hospital services, better techniques of administration, better methods for coordinating the care between facilities, and better architectual design of hospitals.

We have over a hundred individuals who have requested applications for grants for the experimental construction program as authorized under the Community Facilities and Services Act which was passed during the last session of Congress.

OPERATIONAL AND TECHNICAL SERVICES

Finally, there is a request for $2,020,000 for our operations and technical services. This is an increase of $248,000. It will permit us to carry out a three-pronged attack on improving the administration of the program.

First, we recently surveyed our regional offices and found that the workload in several offices was so heavy that the staff was unable to give the kind of technical assistance and consultation to States that is needed. Our operations and technical services item has never been adequate to take care of the workload, and won't be adequate to take care of even the workload which is proposed in the $170 million program we have this year.

In addition, we are planning a two-pronged attack on problems in the Hill-Burton program during 1963 which we consider crucial and which will require additional funds.

First, we have laid out a program which is designed to improve State planning and to insure that new and expanded facilities are constructed where they can be most effectively utilized. Secondly, the guide materials relating to the design and construction of health facilities which have contributed so much to the program need to be updated, and we want to develop new material to assist hospitals in this area.

I will be glad to attempt to answer any questions you may have.

REDUCTION IN PART C HOSPITAL CONSTRUCTION

Mr. **Fogarty.** Doctor, I think I asked the Secretary when he was here about this most significant cut of $50 million for the construction of hospitals under part C, which applies to general hospital beds, doesn't it?

Dr. **Haldeman.** That is correct.

Mr. **Fogarty.** I have no quarrel with the increases in the others, but there is a $50 million cut in this one area. From the information that we have for 1963, if we appropriated the funds that the States would match, the Federal share would be $597 million instead of $176 million.

Dr. **Haldeman.** That is correct, sir.

Mr. **Fogarty.** Out of this $597 million, I think the most significant fact is that $505 million of it would be used for part C, and only $91 million for part G.

Dr. **Haldeman.** That is correct, sir.

Mr. **Fogarty.** So the need is there and the States are prepared to go much further than the Federal Government will under this budget. This program has operated so successfully over the years because it is primarily a State program, isn't it?

Dr. **Haldeman.** That is correct.

Mr. **Fogarty.** The State departments of health decide on the priorities of the applications, and about all you do in this area is to make sure that the plans are good and the project is eligible under the law. Then, when they are built, you have nothing more to do with them.

Dr. **Haldeman.** We review and approve the State plans, and then review the applications to see that they are submitted in accordance with the plan.

Mr. **Fogarty.** This is something I just can't understand. When the States say they could match $505 million for the construction of needed general hospitals and you are cutting the program back by $50 million. This doesn't make sense to me.

(The table being referred to in the foregoing discussion follows:)

Summary of anticipated construction of hospitals and other medical facilities (under title VI of the Public Health Service Act) if there were no limitation on Federal assistance, for fiscal years 1963 and 1964

State and program year	Number of projects			Beds or units added, by type of project									Estimated cost (thousands)					
				Part C					Part G				Total program		Part C		Part G	
	Total	Part C	Part G	General hospital	Mental hospital	Chronic hospital	TB hospital	Health center (units)	Diagnostic or treatment (units)	Chronic hospital	Rehabilitation facilities (units)	Nursing homes	Total cost	Federal share	Total cost	Federal share	Total cost	Federal share
Total	1,739	1,127	612	69,892	18,352	1,212	104	91	135	3,601	75	18,816	$2,379,060	$987,118	$2,002,641	$841,201	$376,419	$145,917
1963	1,158	761	397	48,581	7,132	880	28	63	86	2,516	53	12,633	1,620,405	597,825	1,360,910	505,874	259,495	91,951
1964	581	366	215	21,311	11,220	332	76	28	49	1,085	22	6,183	758,655	389,293	641,731	335,327	116,924	53,966
Alabama	42	25	17	1,181			50	7	2			356	20,627	15,125	16,415	12,359	4,212	2,766
1963	27	16	11	668				4	1			251	11,029	8,633	8,449	6,955	2,580	1,678
1964	15	9	6	513			50	3	1			105	9,598	6,492	7,966	5,404	1,632	1,088
Alaska	17	9	8	195	277			2	5			119	19,531	8,061	13,463	5,026	6,068	3,035
1963	4	4		82				2					3,753	870	3,753	870		
1964	13	5	8	113	277				5			119	15,778	7,191	9,710	4,156	6,068	3,035
Arizona	13	12	1	1,445				3		42			30,450	15,225	29,850	14,925	600	300
1963	13	12	1	1,445				3		42			30,450	15,225	29,850	14,925	600	300
1964																		
Arkansas	25	20	5	590	1,000			1	1		4		17,503	8,939	16,385	8,194	1,118	745
1963	13	10	3	275	1,000			1	1		2		11,943	4,073	11,335	3,668	608	405
1964	12	10	2	315							2		5,560	4,866	5,050	4,526	510	340
California	99	63	36	5,583	230			9	6	96	8	1,280	174,174	52,123	142,548	44,899	31,626	7,224
1963	73	52	21	4,569	230			7	6	96	7	498	137,687	40,875	113,811	36,254	23,876	4,621
1964	26	11	15	1,014				2			1	782	36,487	11,248	28,737	8,645	7,750	2,603
Colorado	34	24	10	2,141	691			1	6			169	66,340	30,820	63,288	29,298	3,052	1,522
1963	34	24	10	2,141	691			1	6			169	66,340	15,410	63,288	14,649	3,052	761
1964														15,410		14,649		761

Connecticut	21	17	4	508	60			1	3			68	23,865	5,167	21,151	4,696	2,714	471
1963	21	17	4	508	60			1	3			68	23,865	5,167	21,151	4,696	2,714	471
1964																		
Delaware	5	5						1					4,500	1,625	4,500	1,625		
1963	5	5						1					4,500	1,625	4,500	1,625		
1964																		
District of Columbia	5		5						3		2		20,945	1,050			20,945	1,050
1963	2		2						1		1		14,095	625			14,095	625
1964	3		3						2		1		6,850	425			6,850	425
Florida	44	42	2	2,938	105			4			1	100	54,450	25,423	51,950	24,376	2,500	1,047
1963	39	37	2	2,703	105			4			1	100	51,150	15,063	48,650	14,016	2,500	1,047
1964	5	5		235									3,300	10,360	3,300	10,360		
Georgia	38	32	6	1,167	500			7	1	75		162	37,628	15,408	34,360	13,774	3,268	1,634
1963	26	20	6	683	500			7	1	75		162	27,630	11,379	24,362	9,745	3,268	1,634
1964	12	12		484									9,998	4,029	9,998	4,029		
Hawaii	27	20	7	391	110			4	3	30	2	100	20,181	9,398	17,916	8,466	2,265	932
1963	11	9	2	201				3	1			100	6,965	2,787	6,400	2,705	565	82
1964	16	11	5	190	110			1	2	30	2		13,216	6,611	11,516	5,761	1,700	850
Idaho	13	7	6	420					1			315	10,900	5,425	7,800	3,875	3,100	1,550
1963	13	7	6	420					1			315	10,900	5,425	7,800	3,875	3,100	1,550
1964																		
Illinois	29	17	12	960	90			2	3	160	2	120	35,920	11,613	28,430	9,117	7,490	2,496
1963	17	10	7	600	60			1	2	100	1	60	20,050	6,323	15,770	4,897	4,280	1,426
1964	12	7	5	360	30			1	1	60	1	60	15,870	5,290	12,660	4,220	3,210	1,070
Indiana	17	11	6	613					1	127	1	175	23,924	7,912	19,404	6,451	4,520	1,461
1963	17	11	6	613					1	127	1	175	23,924	7,912	19,404	6,451	4,520	1,461
1964																		
Iowa	32	16	16	1,035	200				1		2	845	41,450	14,150	27,480	9,160	13,970	4,990
1963	16	7	9	410					1		1	540	17,930	6,060	9,660	3,220	8,270	2,840
1964	16	9	7	625	200						1	305	23,520	8,090	17,820	5,940	5,700	2,150

Summary of anticipated construction of hospitals and other medical facilities (under title VI of the Public Health Service Act) if there were no limitation on Federal assistance, for fiscal years 1963 and 1964—Continued

State and program year	Number of projects			Beds or units added, by type of project									Estimated cost (thousands)					
				Part C					Part G				Total program		Part C		Part G	
	Total	Part C	Part G	General hospital	Mental hospital	Chronic hospital	TB hospital	Health center (units)	Diagnostic or treatment (units)	Chronic hospital	Rehabilitation facilities (units)	Nursing homes	Total cost	Federal share	Total cost	Federal share	Total cost	Federal share
Kansas	9	8	1					1					$14, 890	$10, 266	$14, 576	$10, 109	$314	$157
1963	2	2											5, 176	3, 722	5, 176	3, 722		
1964	7	6	1					1					9, 714	6, 544	9, 400	6, 387	314	157
Kentucky	48	42	6	1, 366	300			1			2	175	36, 280	17, 206	31, 250	15, 113	5, 030	2, 093
1963	29	25	4	656	100			1			2	85	21, 430	9, 531	17, 300	7, 888	4, 130	1, 643
1964	19	17	2	710	200							90	14, 850	7, 675	13, 950	7, 225	900	450
Louisiana	38	26	12	1, 965	1, 100				2	150	1	330	63, 410	32, 520	57, 570	29, 600	5, 840	2, 920
1963	18	10	8	855					1	90		280	21, 110	11, 770	16, 970	9, 700	4, 140	2, 070
1964	20	16	4	1, 110	1, 100				1	60	1	50	42, 300	20, 750	40, 600	19, 900	1, 700	850
Maine	18	12	6	333			26		1	125		100	13, 750	6, 875	9, 200	4, 600	4, 550	2, 275
1963	8	6	2	193					1			30	6, 500	3, 250	5, 900	2, 950	600	300
1964	10	6	4	140			26			125		70	7, 250	3, 625	3, 300	1, 650	3, 950	1, 975
Maryland	24	17	7	1, 787	1, 200			2		66	2	65	92, 134	32, 687	88, 314	31, 334	3, 820	1, 353
1963	21	16	5	1, 787	1, 200			1		66	2	40	91, 804	16, 471	88, 104	15, 658	3, 700	813
1964	3	1	2					1				25	330	16, 216	210	15, 676	120	540
Massachusetts	51	38	13	1, 502		65			11		2		46, 945	18, 778	41, 195	16, 478	5, 750	2, 300
1963	26	26		1, 127		25							31, 420	12, 568	31, 420	12, 568		
1964	25	12	13	375		40			11		2		15, 525	6, 210	9, 775	3, 910	5, 750	2, 300
Michigan	35	27	8	1, 969	1, 255	84		2		155		485	70, 364	30, 867	63, 964	27, 667	6, 400	3, 200
1963	16	13	3	751	180	84		1		50		135	26, 414	14, 224	24, 714	13, 374	1, 700	850
1964	19	14	5	1, 218	1, 075			1		105		350	43, 950	16, 643	39, 250	14, 293	4, 700	2, 350
Minnesota	116	30	86	3, 103	70			1		195	2	4, 273	124, 025	54, 751	85, 380	37, 360	38, 645	17, 391
1963	79	24	55	2, 422	70			1		75	1	2, 776	93, 748	41, 036	69, 360	30, 151	24, 388	10, 885
1964	37	6	31	681						120	1	1, 497	30, 277	13, 715	16, 020	7, 209	14, 257	6, 506

Mississippi:																		
1963 [1]	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
1964 [1]	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
Missouri	25	14	11	1,123	113	154	-----	-----	2	-----	1	520	34,269	17,023	25,903	12,951	8,366	4,072
1963	10	3	7	536	60	79	-----	-----	1	-----	1	340	15,809	7,793	11,377	5,688	4,432	2,105
1964	15	11	4	587	53	75	-----	-----	1	-----	-----	180	18,460	9,230	14,526	7,263	3,934	1,967
Montana	11	7	4	473	24	150	-----	-----	-----	50	-----	242	16,118	5,714	13,560	4,754	2,558	960
1963	11	7	4	473	24	150	-----	-----	-----	50	-----	242	16,118	2,907	13,560	2,377	2,558	530
1964	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	2,807	-----	2,377	-----	430
Nebraska	30	13	17	336	-----	150	-----	1	3	60	2	285	13,315	7,526	9,675	6,070	3,640	1,456
1963	24	11	13	246	-----	150	-----	1	3	60	2	180	10,995	4,598	8,125	3,470	2,870	1,128
1964	6	2	4	90	-----	-----	-----	-----	-----	-----	-----	105	2,320	2,928	1,550	2,600	770	328
Nevada	16	9	7	170	-----	-----	28	-----	-----	-----	-----	218	6,534	2,999	4,224	1,844	2,310	1,155
1963	6	3	3	61	-----	-----	28	-----	-----	-----	-----	142	3,450	1,647	1,900	872	1,550	775
1964	10	6	4	109	-----	-----	-----	-----	-----	-----	-----	76	3,084	1,352	2,324	972	760	380
New Hampshire	18	9	9	409	-----	-----	-----	-----	7	-----	-----	60	8,967	3,208	7,392	2,488	1,575	720
1963	9	4	5	150	-----	-----	-----	-----	3	-----	-----	60	3,925	1,009	2,880	709	1,045	300
1964	9	5	4	259	-----	-----	-----	-----	4	-----	-----	-----	5,042	2,199	4,512	1,779	530	420
New Jersey	34	20	14	2,359	20	-----	-----	1	8	-----	4	125	50,275	14,524	41,926	11,873	8,349	2,651
1963	30	18	12	2,309	20	-----	-----	-----	8	-----	4	-----	47,391	13,514	41,017	11,554	6,374	1,960
1964	4	2	2	50	-----	-----	-----	1	-----	-----	-----	125	2,884	1,010	909	319	1,975	691
New Mexico	22	16	6	438	128	-----	-----	6	1	40	-----	75	16,432	8,434	15,662	7,881	770	553
1963	12	8	4	237	128	-----	-----	1	1	20	-----	43	7,162	3,799	6,742	3,421	420	378
1964	10	8	2	201	-----	-----	-----	5	-----	20	-----	32	9,270	4,635	8,920	4,460	350	175
New York	71	51	20	5,294	120	-----	-----	1	-----	492	-----	517	254,081	92,580	240,240	87,791	13,841	4,789
1963	42	29	13	1,872	38	-----	-----	1	-----	412	-----	265	119,016	41,725	108,425	38,852	10,591	2,873
1964	29	22	7	3,422	82	-----	-----	-----	-----	80	-----	252	135,065	50,855	131,815	48,939	3,250	1,916
North Carolina	48	32	16	2,985	-----	-----	-----	2	10	210	3	-----	77,274	35,529	70,874	31,883	6,400	3,646
1963	25	18	7	2,065	-----	-----	-----	1	5	50	1	-----	51,839	16,020	48,539	14,148	3,300	1,872
1964	23	14	9	920	-----	-----	-----	1	5	160	2	-----	25,435	19,509	22,335	17,735	3,100	1,774
North Dakota	17	9	8	322	-----	-----	-----	-----	-----	-----	2	360	10,213	3,891	6,232	2,299	3,981	1,592
1963	13	8	5	272	-----	-----	-----	-----	-----	-----	2	165	7,388	1,853	5,232	1,293	2,156	560
1964	4	1	3	50	-----	-----	-----	-----	-----	-----	-----	195	2,825	2,038	1,000	1,006	1,825	1,032

Summary of anticipated construction of hospitals and other medical facilities (under title VI of the Public Health Service Act) if there were no limitation on Federal assistance, for fiscal years 1963 and 1964—Continued

State and program year	Number of projects			Beds or units added, by type of project									Estimated cost (thousands)					
				Part C					Part G				Total program		Part C		Part G	
	Total	Part C	Part G	General hospital	Mental hospital	Chronic hospital	TB hospital	Health center (units)	Diagnostic or treatment (units)	Chronic hospital	Rehabilitation facilities (units)	Nursing homes	Total cost	Federal share	Total cost	Federal share	Total cost	Federal share
Ohio	134	88	46	5,949	9,000	345	----	----	17	----	8	1,271	$232,539	$75,538	$203,454	$67,811	$29,085	$7,727
1965			1	3,300	1,350	225	----	----	14	----	5	533	115,898	36,859	95,369	31,787	20,529	5,072
1964	61	46	5	2,649	7,650	120	----	----	3	----	3	738	116,641	38,679	108,085	36,024	8,556	2,655
Oklahoma:																		
1963 [1]	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
1964 [1]	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
Oregon	25	13	12	221	443	----	----	3	----	30	1	318	17,258	6,584	12,268	4,089	4,990	2,495
1963	11	5	6	195	----	----	----	1	----	30	----	88	6,695	2,493	5,125	1,708	1,570	785
1964	14	8	6	26	443	----	----	2	----	----	1	230	10,563	4,091	7,143	2,381	3,420	1,710
Pennsylvania	45	30	15	1,257	----	----	----	----	4	425	2	520	54,734	18,200	38,808	12,998	15,926	5,202
1963	45	30	15	1,257	----	----	----	----	4	425	2	520	54,734	18,200	38,808	12,998	15,926	5,202
1964	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
Rhode Island	8	6	2	182	----	----	----	----	2	----	----	----	15,367	6,160	14,473	5,712	894	448
1963	6	5	1	132	----	----	----	----	1	----	----	----	13,967	612	13,173	514	794	98
1964	2	1	1	50	----	----	----	----	1	----	----	----	1,400	5,548	1,300	5,198	100	350
South Carolina	50	27	23	1,290	----	----	----	7	8	----	6	390	28,740	18,587	19,860	12,940	8,880	5,647
1963	24	14	10	660	----	----	----	2	4	----	3	120	14,490	9,087	10,710	6,840	3,780	2,247
1964	26	13	13	630	----	----	----	5	4	----	3	270	14,250	9,500	9,150	6,100	5,100	3,400
South Dakota	18	12	6	267	----	----	----	----	----	----	----	245	7,170	2,883	5,420	2,100	1,750	783
1963	10	6	4	163	----	----	----	----	----	----	----	165	4,800	1,698	3,650	1,215	1,150	483
1964	8	6	2	104	----	----	----	----	----	----	----	80	2,370	1,185	1,770	885	600	300
Tennessee	8	5	3	253	----	----	----	----	1	----	----	166	7,980	4,138	6,740	3,494	1,240	644
1963	8	5	3	253	----	----	----	----	1	----	----	166	7,980	4,138	6,740	3,494	1,240	644
1964	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----

Texas	67	49	18	2, 621	715			3	2	30	3	1, 630	92, 504	43, 752	69, 192	32, 096	23, 312	11, 656
1963	50	35	15	2, 147	715			3	2	30	3	1, 578	79, 514	32, 744	56, 742	22, 483	22, 772	10, 261
1964	17	14	3	474								52	12, 990	11, 008	12, 450	9, 613	540	1, 395
Utah	38	31	7	1, 145	200			4		70	1	108	45, 920	19, 988	43, 500	18, 778	2, 420	1, 210
1963	38	31	7	1, 145	200			4		70	1	108	45, 920	19, 988	43, 500	18, 778	2, 420	1, 210
1964																		
Vermont	11	7	4	136	28				2		1	25	4, 363	1, 673	3, 192	1, 161	1, 171	512
1963	6	3	3	30	28				2		1		2, 163	788	1, 292	427	871	361
1964	5	4	1	106								25	2, 200	885	1, 900	734	300	151
Virginia	29	21	8	2, 135				7		200		440	55, 525	24, 226	50, 365	21, 421	5, 160	2, 805
1963	29	21	8	2, 135				7		200		440	55, 525	13, 342	50, 365	11, 747	5, 160	1, 595
1964														10, 884		9, 674		1, 210
Washington	33	28	5	1, 381				2	2		2	60	42, 533	17, 013	38, 548	15, 419	3, 985	1, 594
1963	22	18	4	576				2	2		2		22, 608	9, 043	19, 823	7, 929	2, 785	1, 114
1964	11	10	1	805								60	19, 925	7, 970	18, 725	7, 490	1, 200	480
West Virginia	25	19	6	583	33	264		4	4		1	30	22, 559	11, 280	19, 253	9, 627	3, 306	1, 653
1963	11	7	4	222	33	167			2		1	30	11, 794	5, 897	9, 338	4, 669	2, 456	1, 228
1964	14	12	2	361		97		4	2				10, 765	5, 383	9, 915	4, 958	850	425
Wisconsin	111	53	58	3, 692	340			1	11	573	7	1, 514	140, 224	56, 741	100, 561	42, 077	39, 663	14, 664
1963	82	42	40	2, 574	340			1	5	448	6	1, 204	94, 521	39, 260	68, 511	29, 257	26, 010	10, 003
1964	29	11	18	1, 118					6	125	1	310	45, 703	17, 481	32, 050	12, 820	13, 653	4, 661
Wyoming	3	1	2	12								60	990	455	240	80	750	375
1963	3	1	2	12								60	990	455	240	80	750	375
1964																		
Guam:																		
1963 [1]																		
1964 [1]																		
Puerto Rico	42	37	5	3, 667					1	200		400	58, 990	57, 058	54, 690	53, 062	4, 300	3, 996
1963	28	24	4	2, 450					1			400	45, 900	48, 332	42, 600	45, 002	3, 300	3, 330
1964	14	13	1	1, 217						200			13, 090	8, 726	12, 090	8, 060	1, 000	666
Virgin Islands:																		
1963 [1]																		
1964 [1]																		

[1] Not reported.

Source: State agency reports to the Public Health Service.

ADDITIONAL HOSPITAL BEDS NEEDED

Mr. **Fogarty.** Another chart that I have shows that in the general hospital area, in 1960 there was a backlog of 158,427 beds. In 1961 the backlog was 158,415. So you didn't even make a dent in this shortage of general hospital beds.

Still we are faced with a budget that is cut by $50 million in this area. It just doesn't make sense to me. What is the authorization?

Dr. **Haldeman.** The authorization under this part of the program is $150 million annually.

Mr. **Fogarty.** We gave you the full authorization for 1962, didn't we?

Dr. **Haldeman.** That is correct.

Mr. **Fogarty.** You are cutting that back by a third. You are only allowing $100 million for this backlog of 158,000 beds, and the States are willing to put up $505 million. That doesn't add up to me.

I think you are making a big mistake—maybe not you; but whoever made this decision is making a big mistake.

Mr. **Laird.** Mr. Chairman, will you yield?

Mr. **Fogarty.** Yes.

Mr. **Laird.** It seems to me that this is one of many phony reductions that have been made by the administration in its budget. I think they realize that this particular program is a rather popular program with the States, and they kind of passed the buck over to the Congress, knowing full well that Congress will restore it.

Mr. **Fogarty.** In all candor, I must agree with you. I have taken this position in other years, and I can't change now.

Mr. **Denton.** Bureaucracy has been doing that for years.

(The table regarding needs referred to in the foregoing discussion follows:)

Beds for inpatient care,[1] *United States and possessions, 1948–61*

ALL CATEGORIES

Year [2]	Total beds needed [3]	Existing beds				Additional beds needed
		Total	Acceptable		Nonacceptable [4]	
			Number	Percent of total need		
1961	2,529,829	1,703,825	1,376,048	54.4	327,777	1,153,781
1960	2,487,196	1,641,191	1,346,059	54.1	295,132	1,141,137
1959	2,450,900	1,568,028	1,286,489	52.5	281,539	1,164,411
1958	2,420,241	1,521,849	1,238,770	51.2	283,079	1,181,471
1957	2,374,383	1,505,695	1,220,546	51.4	285,149	1,153,837
GENERAL HOSPITALS						
1961	778,081	694,696	619,666	79.6	75,030	158,415
1960	765,765	678,481	607,338	79.3	71,143	158,427
1959	761,610	653,082	587,318	77.1	65,764	174,292
1958	745,594	632,674	559,818	75.1	72,856	185,776
1957	727,399	620,922	547,473	75.3	73,449	179,926
1956	722,112	614,020	541,363	75.0	72,657	180,749
1955	720,001	601,241	526,458	73.1	74,783	193,543
1954	704,400	589,611	515,980	73.3	73,631	188,420
1953	714,469	572,555	495,247	69.3	77,308	219,222
1952	708,574	554,084	474,334	66.9	79,750	234,240
1951	700,952	548,798	469,192	66.9	79,606	231,760
1950	682.601	513,814	437,786	64.1	76,028	244,815
1949	652,611	474,532	397,168	60.9	77,364	255,443
1948	652,974	469,398	388,144	59.4	81,254	264,830

Beds for inpatient care,[1] *United States and possessions, 1948–61*—Continued

MENTAL HOSPITALS

Year [2]	Total beds needed	Existing beds				Additional beds needed
		Total	Acceptable		Nonacceptable [4]	
			Number	Percent of total needed		
1961	884,721	554,775	456,940	51.6	97,835	427.781
1960	870,313	541,931	449,532	51.7	92,399	420,781
1959	857,583	533,587	445,009	51.9	88,578	412,574
1958	842,410	528,406	441,691	52.4	86,715	400,719
1957	823,040	525,455	435,453	52.9	90,002	387,587
1956	808,929	520,010	449,706	55.6	70,304	359,223
1955	793,789	513,278	441,440	55.6	71,838	352,349
1954	774,648	500.568	437,659	56.5	62,909	336,989
1953	767,683	490,598	431,007	56.1	59,591	336,676
1952	755,097	482,733	412,932	54.7	69,801	342,165
1951	744,323	483,310	415,530	55.8	67,780	328,793
1950	725,203	462,859	399,138	55.0	63,721	326,065
1949	692,150	428,931	381,627	55.1	47,304	310,523
1948	690,381	427,201	380,343	55.1	46,858	310,038

TUBERCULOSIS

Year [2]	Total beds needed	Total	Number	Percent of total needed	Nonacceptable [4]	Additional beds needed
1961	74,959	72,893	68,769	91.7	4,125	6,191
1960	81,327	78,334	73,274	90.1	5,060	8,053
1959	85,313	84,445	76,685	89.9	7,760	8,628
1958	87,758	88,549	80,105	91.3	8,444	7,653
1957	92,770	91,962	82,152	88.6	9,810	10,618
1956	101,022	96,929	85,584	84.7	11,345	15,438
1955	107,174	100,885	86,552	80.8	14,333	20,622
1954	108,350	102,076	86,686	80.0	15,390	21,664
1953	117,374	100,204	86,698	73.9	13,506	30,676
1952	133,899	99,147	87,550	65.4	11,597	46,349
1951	140,391	96,955	85,351	60.8	11,604	55,040
1950	148,936	94,024	81,511	54.7	12,513	67,425
1949	155,101	85,466	72,560	46.8	12,906	82,541
1948	156,693	84,864	71,857	45.9	13,007	84,836

LONG-TERM CARE [5]

Year [2]	Total beds needed	Total	Number	Percent of total needed	Nonacceptable [4]	Additional beds needed
1961	792,068	381,461	230,674	29.1	150,787	561,394
1960	769,791	342,445	215,915	28.0	126,530	553,876
1959	746,394	296,914	177,477	23.8	119,437	568,917
1958	744,479	272,220	157,156	21.1	115,064	587,323
1957	731,174	267,356	155,468	21.3	111,888	575,706

[1] Excluding Federal facilities.
[2] As of Jan. 1, each year.
[3] Based on bed needs as reported in State plans submitted by Hill-Burton State agencies under title VI of the Public Health Service Act and regulations thereunder.
[4] Classified by State agencies on the basis of fire and health hazards.
[5] Includes beds in chronic disease hospitals and skilled nursing homes.

Source: State plans for hospital construction, approved under title VI of the Public Health Service Act.

LETTER FROM RHODE ISLAND HEALTH COMMISSIONER

Mr. Fogarty. I have just received a letter—I wish I had brought it with me—from my State health commissioner saying this is the worst blow that they have suffered in this program in years.

I realize the States have no right to make plans based on Congress appropriating the maximum authorization for every Federal-State program. But, because of the popularity of this program, many of the States have planned 2 and 3 years ahead. Now they are faced with this reduction of $50 million; and in a small State like Rhode Island it is going to throw the whole program out of balance.

I will put his letter in the record.
(The letter referred to follows:)

State of Rhode Island and Providence Plantations,
Department of Health,
Providence, February 1, 1962.

Hon. John E. Fogarty,
U.S. House of Representatives,
Washington, D.C.

Dear Congressman Fogarty: We have recently received notice of the tentative allocations to States for construction of hospitals and medical facilities for the fiscal year ending June 30, 1963, as proposed in the President's budget for that fiscal year. The allocation to Rhode Island will be decreased by $230,678 from the 1962 allocation. It would be the smallest allocation that we have received since fiscal year 1959.

For your guidance, I am submitting the following fact picture which represents our best interpretation of the demands which will be made upon the hospital construction allocation in this State during the next 5 years. These are actually minimum figures, since we have not included projects that are only in the possibility stage. All the projects listed have been seriously considered, both by our agency and the boards of trustees of the particular hospital, and are in the planning stages. Also, we have not included all current projects which have already received allocations, although the allocation was not equal to the maximum amount allowable under the law, as these projects have passed the time deadline for further allocations. The fact picture is attached. It is clear from these facts that the allocation for general hospital construction should be increased rather than diminished.

It should be noted that three of the hospitals, St. Joseph's Hospital, Providence, Memorial Hospital, Pawtucket, and Mercy Hospital, Woonsocket, are not concerned with the creation of more beds. They are concerned with replacement of existing obsolete beds. This is a paradoxical situation in that the older cities who were the pioneers in the development of good hospital facilities are now in the position of having the most inefficient and obsolete beds. The need in Rhode Island is greater for the replacement and modernization of the old hospital than it is for the creation of more beds. We would like to see an additional exphasis in the Hospital Construction Act on funds for this type of new construction. Nearly one-third of the hospital beds in the established urban areas of Rhode Island are in obsolete and inefficient physical plant.

In addition to the extent of probable general hospital construction outlined in the attached chart, there is also another consideration which should be brought to your attention. We all know that there is a great need to develop long-term-care facilities. Congress has continued to allocate funds for this purpose in the hospital construction program. In fact, in the last session, the category for nursing home construction was doubled, and this present fiscal year, we received $200,000 for nursing homes and chronic illness facilities construction. To date, we have not been able to interest any sponsor in this type of building. A number of sponsors have been contacted and have shown interest. However, as soon as we get to the question of how the facility will be operated, sponsors lose interest. No hospital in Rhode Island has been able to solve the problem of operating costs for this type of facility. Therefore, except in a few instances, we have had to transfer this money to the diagnostic and treatment facilities category.

I believe that this problem of meeting operating costs for long-term care is the subject of other bills being considered by the Congress, and is being studied by the Public Health Service. It is our belief that we cannot have an effective program for developing medical facilities until it is solved. The needs of those citizens who must have adequate long-term-care facilities and the needs of those who must operate such facilities on a balanced budget must be reconciled in a workable plan.

I hope that the facts which we have presented in this letter concerning our experience with the hospital construction program will be of help to you in the current session of Congess.

Sincerely yours,

Joseph E. Cannon, M.D., M.P.H.

Fact sheet on Rhode Island hospital construction

I. PROJECTS WHICH HAVE BEEN APPROVED FOR PARTICIPATION

Place	Name	Total cost	Allocation to date	Maximum possible allocation under present law
Providence	Miriam Hospital	$5,517,000	$100,000	$2,287,000
Do	St. Joseph's Hospital	4,700,000	300,000	1,800,000
Do	Rhode Island Hospital School of Nursing.	2,180,000	103,000	869,000
Do	Roger Williams General Hospital School of Nursing.	770,000	34,000	311,000
Newport	Newport Hospital	968,312	159,156	479,156
Subtotal		14,135,312	696,156	5,746,156

II. PROJECTS NOW IN THE PLANNING STAGE WHICH COULD BE WHOLLY OR PARTLY APPROVED FOR PARTICIPATION [1]

Westerly	Westerly Hospital	$1,300,000		$250,000
Providence	Rhode Island Hospital, Ambulatory facility.	7,000,000		2,800,000
Do	Rhode Island Hospital, Psychiatric wing.	200,000		80,000
Woonsocket	Mercy Hospital	1,000,000		200,000
Pawtucket	Memorial Hospital	5,000,000		2,000,000
Subtotal		14,500,000		5,330,000

III. TOTAL BOTH CATEGORIES

Total		$28,635,312	$696,156	$11,076,156

[1] All figures are reasonably accurate estimates.

Mr. Fogarty. I think that is a good example of how this sort of an action can be the first step in ruining one of the best programs that the Federal Government has ever developed, because it is a Federal-State activity, with the States having the largest share of the responsibility.

We have this tremendous backlog of 158,000 beds and the States and local communities have these plans to go ahead. Even with what we did last year, it will just about keep pace with replacement of obsolete facilities and the population increase rather than cutting significantly into the backlog. And here you are coming up with a budget that is even cutting that back.

SUMMARY OF BUDGET

The appropriation for 1962 is $221,500,000, including $10 million for the special research program, and the request for 1963 is $176,220,000—a reduction of $45,280,000 from the congressional authorization.

RESERVE IN RESEARCH FUNDS

Is it right that $1,883,000 in the special research appropriation was put in a reserve for savings?

Dr. Haldeman. That is correct, sir.

Mr. Fogarty. We were convinced last year that this is an area that could yield real benefits. You people—not you, but people in the field of hospital administration—have been asking for more research funds for some time. You have been complaining about the limitations put on by Congress in the area of research. What was it?

Dr. Haldeman. $1,200,000.

Mr. Fogarty. Then this committee put $10 million in the bill because of the testimony by people from the Mayo Clinic and the Presbyterian Hospital in Rochester. Then the Senate deleted it. In conference we agreed to put the $10 million for this kind of a research construction program back in the bill, but to shift it from NIH to the regular program.

Now we find that a cut of $1,883,000 has been imposed in this area. If there was ever a place in the Public Health Service that should be exempt from a cut under the President's statement—

> I much prefer that obligational authority remain uncommitted where there is any doubt that expenditures would yield substantial returns to the national interest—

this is it. Hardly anything has been done in the past 50 years in hospital construction research to reduce hospital costs. It affects everyone—the local communities and the States, the Federal Government and the individuals themselves. I can't understand cuts like this.

ACTIVITIES IN CONSTRUCTION RESEARCH

Tell us what you are doing with the $8,117,000 that the Secretary and the Bureau of the Budget are allowing you to spend in this area.

Dr. Haldeman. We have a substantial increase in the number of applications that have been submitted, both for our regular research program and for the program for the study of experimental design, which was authorized by the last Congress.

At the present time we have applications totaling in excess of $34 million for this program. Approximately $15 million of that is for studies of the type which we had previously carried out. To date we have received applications requesting $19 million under the new authorized program for experimental construction.

Of course, the program was authorized last fall, and the applicants have to develop schematic drawings before we can consider the applications. So I would anticipate that we would get additional applications in prior to the end of the fiscal year.

Mr. Fogarty. You mean you are going to wait until the end of the fiscal year before you start acting on some of these applications?

Dr. Haldeman. No; we will approve a number of applications at the March meeting of the Federal Hospital Council.

Mr. Fogarty. Who makes up that Council?

Dr. Haldeman. The Council presently has six members. These include Mr. George Bugbee, of New York, the president of the National Health Information Foundation, and Dr. Albert W. Dent, the president of Dillard University.

Mr. Fogarty. What university?

Dr. Haldeman. Dillard University in New Orleans. Other members are Miss Lizabeth Bamberger, assistant director of the Department of Social Security of the AFL-CIO; Dr. Frederick Thayer Hill, of Waterville, Maine, who has been the past president of both the Maine Medical Society and the Maine Hospital Association: the Right Reverend Monsignor Donald A. McGowan, director of the Bureau of Health and Hospitals, National Catholic Welfare Conference, Washington, D.C., and a sociologist from Washington State University, Dr. Paul H. Landis.

Mr. **Fogarty**. What Dr. Landis?

Dr. **Haldeman**. He is a rural sociologist. Dr. Ed Crosby, the executive director of the American Hospital Association, has been a member. His term is just expiring. I think we have two vacancies at the present time.

Mr. **Fogarty**. When will they meet?

Dr. **Haldeman**. They will meet in March——

Dr. **Terry**. Early April.

Mr. **Fogarty**. They will meet and they will pass on these applications?

Dr. **Haldeman**. That is correct, sir.

Mr. **Fogarty**. And then some awards will be made soon after they have made their recommendations?

Dr. **Haldeman**. The consideration of applications for experimental construction will be delayed until the June meeting. This time lapse is necessary since potential applicants require a certain amount of time to develop an experimental design; also, the architect, working with the applicant, must have sufficient time to develop the preliminary drawings which must be submitted to us so we will be able to delineate the areas that are experimental in nature.

Mr. **Fogarty**. This is a difficult problem, I know. I have talked to members of architectural engineering firms. They tell me that they have a difficult time in trying to get doctors to sit down with their engineers and make specific recommendations.

They go ahead and design a hospital, and then the doctors find all kinds of fault with this and that after the hospital has been built and put into operation.

Is that fairly general throughout the country, or is it just peculiar to New England?

Dr. **Haldeman**. Well, I hear similar statements quite often. We try very hard to work with the applicants and with their architects in the development of written programs and schematic drawings prior to going to the expense of developing detailed specifications. If this isn't done during the early stages, you run into a good deal of extra costs and difficulty if in the later stages changes in the specifications are suggested.

HOSPITAL DESIGN

I think, though, this country is far ahead of any other country in the world in the design of hospitals.

Mr. **Fogarty**. That is not saying much. That is nothing to brag about. You haven't had any significant changes in design in hospitals in this country in 50 years—any real, significant, revolutionary changes.

Dr. **Haldeman**. I think we have made tremendous headway in the postwar years, Mr. Chairman. We certainly have in the organization of hospital services.

Mr. **Fogarty**. I am just talking about the construction of the physical plant itself. That is what I was referring to, not the services.

Dr. **Haldeman**. I am sorry, Mr. Chairman; I must disagree in this area. If you visit hospitals which have been built in the last 10 years and compare with hospitals that were built immediately prior to the war——

Mr. Fogarty. We have some hospitals in Rhode Island which were built within the last 5 or 6 years, and some which were built 60 or 70 years ago, and I don't see much difference in the construction. Maybe Rhode Island is way behind. Maybe we don't have good architects up that way, but we think we have. Some of them have been built with architects from New York, too.

Dr. Haldeman. I certainly would not agree with the chairman——

Mr. Fogarty. I would like you to go to Rhode Island and point out these revolutionary changes that have taken place in the last 10 years in the construction of hospitals. I haven't noticed any. Where is there a good example in Washington?

Dr. Haldeman. I think there is a very good example at Providence—Rhode Island Hospital—a hospital that has a very excellent functional relationship. That is where we have made progress in the last 15 years.

Mr. Fogarty. I will compare the Rhode Island Hospital with some of the older ones 25 years ago, and there isn't a lot of difference. And some of the other hospitals in Providence which have put on additions in the last 3 or 4 years, the additions seem to go along with the same old design as the original building which was built 25 or 30 years ago. These are the ones I have been in.

I have been in the Rhode Island Hospital many times. We think it is a good hospital, but I don't think there is anything revolutionary about the design.

Dr. Haldeman. I certainly agree that we should make every effort to improve our design, and I think the program that was made possible by Congress in the last few years in experimental design will assist in this objective.

Mr. Fogarty. I think if you had been in charge of this program since its inception you would have gotten some of these programs off the ground. But you weren't in charge of it. How long have you been on this job now?

Dr. Haldeman. I was the executive officer in the first 2 years of the life of the program, primarily responsible for developing the operating procedures.

Mr. Fogarty. Then you left this division.

Dr. Haldeman. Yes. I had various other assignments—coming back to the program, I believe, in the fall of 1958.

Mr. Fogarty. So I am not blaming you. I just say there is a lack of action in this field. I think we ought to get on with the job and try to do something. There are a lot of people talking about it now. Most of the people I hear from and listen to think this is something that should have been done years ago.

HOSPITAL RESEARCH PROGRAM

Dr. Haldeman. As you know, Mr. Chairman, I have been publicly advocating a very broad expansion of the program in hospital research.

Mr. Fogarty. That is right, you have. I mentioned that a while ago. Of course this committee had no authority to change that limitation. That was the legislative committee's responsibility. But we did have the authority to do something about construction design research, and did something last year. I have been disappointed with the action so far.

We hope this program will get started in a good way this year. This $8 million is only one-fourth enough to finance the applications that you have received. Didn't you say you have received about $34 million?

Dr. **Haldeman**. That is correct, sir.

BREAKDOWN OF 1963 BUDGET

Mr. **Fogarty**. The breakdown of this request and comparisons with 1962 are shown on page 199, which we will put in the record.

(Page 199 is as follows:)

Summary Statement

Amounts available for obligation

	1962	1963
Appropriation	$211,500,000	$176,220,000
Comparative transfer from "Hospital and medical facility research" (excludes $1,883,000 reserve for savings)	8,117,000	0
Total	219,617,000	176,220,000

Obligations by activities [1]

Description	1962 estimate		1963 estimate		Increase or decrease	
	Positions	Amount	Positions	Amount	Positions	Amount
Construction of hospitals, etc., under pt. C of the Public Health Service Act	--------	$150,000,000	--------	$100,000,000	--------	−$50,000,000
Construction of medical facilities under pt. G of the act:						
Chronic disease hospitals	--------	20,000,000	--------	20,000,000	--------	--------
Diagnostic of treatment centers	--------	14,228,000	--------	20,000,000	--------	+5,772,000
Rehabilitation facilities	--------	7,000,000	--------	10,000,000	--------	+3,000,000
Nursing homes	--------	18,500,000	--------	20,000,000	--------	+1,500,000
Hospital and medical facility research	44	8,117,000	50	4,200,000	+6	−3,917,000
Operations and technical services	176	1,772,000	200	2,020,000	+24	+248,000
Total obligations	220	219,617,000	250	176,220,000	+30	−43,397,000

[1] Hospital construction grants are on an allocation basis.

DECREASE IN HOSPITAL RESEARCH PROGRAM

Mr. **Fogarty**. There is a net decrease of $3,900,000 in your research program for 1963. Isn't this what you have been talking about?

Dr. **Haldeman**. That is correct.

Mr. **Fogarty**. This is something that you have been wanting to expand and now you show a decrease. Why is that?

Dr. **Haldeman**. This request will permit us to continue our research and study program at about the same level as this year, but it will only permit us to finance a few small experimental design projects.

Mr. **Fogarty**. I can't see why, if this is so important— and I think it is important and you think it is important—we are cutting back $3,900,000. How much do you think we ought to be spending in 1963?

Dr. **Haldeman**. I think we could use the full authorized amount of $10 million very well.

INITIAL BUDGET REQUEST

Mr. **Fogarty**. What did you ask the Department for?

Dr. **Haldeman**. The budget request was already in the mill last fall when the new authorization was obtained. Maybe Mr. Kelly could answer that.

Mr. **Kelly**. The total figures that I have in front of me, Mr. Chairman, are the $227,396,000 as the Public Health Service request. The Department asked the Budget Bureau for $227,200,000; and the President's budget contains $176,220,000.

The Department's reduction was 13 positions and $196,000 and related to the operation and technical services. The Budget increased the number of positions by 10 over our request, and decreased the amount of money by $50,980,000. The $50 million was related to the part C general hospital grants; and $1,100,000 was a reduction which related to the research transfer.

Mr. **Fogarty**. What about the $10 million item?

Mr. **Kelly**. $4,200,000 which is in the budget—the request was for $5,300,000, and it was reduced by $1,100,000.

Mr. **Fogarty**. Dr. Haldeman, I would think that after Congress acted last September that you had time to revise your request. Other departments did.

Mr. **Kelly**. Our thinking, I think, at the time we made the submission to the Budget Bureau, Mr. Chairman, was that the $5,300,000 for research would permit a significant expansion in the $1,200,000-type research of special projects; and that the funds available for experimental construction would be restricted to very small research projects in a particular part of the hospital as distinguished from a broad and large construction research project.

Mr. **Fogarty**. It has been estimated here today we are going to spend $8 million in 1962. We ought to be spending $10 million. We have $34 million in applications now; and you are cutting this down by $4 million. It just doesn't make sense to me.

It looks to me, Dr. Haldeman, as though someone has made a decision not to finance any construction research projects. I don't know what you are going to do with this amount of money. That isn't going to get you anywhere. Has someone decided that this committee was wrong in making a recommendation last year that we spend some money in this area?

This was one of the most popular items in the bill when we got to the floor of the House last year. Everybody was talking about it and everybody seems to think this is an area we ought to do something in. I am sure you read the report and the debates last year. This attracted more attention, I think, than anything else in the bill.

EXPANDED RESEARCH FAVORED

Dr. **Haldeman**. Could I comment, Mr. Chairman?

Mr. **Fogarty**. Sure; go ahead.

Dr. **Haldeman**. I am highly in favor of the expanded research program, not only our regular hospital research program but our program relating to experimental design. I anticipate that we are going to get applications for some very large amounts of money under this program. I also think that it is very important that we very carefully evaluate these projects from the viewpoint of their contribution to the betterment of hospital design.

Quite frankly, I feel that we will get applications, and perhaps already have, from applicants who cannot meet the priority requirements under the regular Hill-Burton program and are taking this opportunity to attempt to obtain financial assistance.

So I think we have got to carefully evaluate these applications and review them. I have looked over most of them which have been submitted to date. We have some very excellent ones, I think; but we also have some which I do not think will meet the criteria which will be established for the approval of such applications.

Mr. FOGARTY. Who is going to establish the criteria?

Dr. HALDEMAN. The Federal Hospital Council.

Mr. FOGARTY. Do you make recommendations to them?

Dr. HALDEMAN. That is correct, sir.

Mr. FOGARTY. Do they generally accept your recommendations?

Dr. HALDEMAN. Not always.

Mr. FOGARTY. I am disappointed in the amount you are asking for this year. I think perhaps it ought to be $25 million in this area, because there is no doubt in my mind at all that you are going to get all kinds of applications for this sort of research project. There must be some good ones among them.

Dr. HALDEMAN. Oh, yes.

Mr. FOGARTY. The longer you hold down these appropriations as you are doing this year, the longer it is going to take to get this program started; and I think the people of this country want some action. This committee does, and the Congress does. Do I make myself clear?

Dr. HALDEMAN. Yes, sir.

INCREASE FOR OPERATIONS AND TECHNICAL SERVICES

Mr. FOGARTY. You are asking for an increase of $248,000 and 24 positions for operations and technical services. At the same time you are cutting back the rest of the program. How do you explain this?

Dr. HALDEMAN. Mr. Chairman, perhaps you will recall for the past 3 or 4 years you have addressed a question to me somewhat along these lines: "If the committee or the Congress saw fit to increase the amount of the appropriation for formula grants, would we need an increase in our own direct operations?"

Each time I answer in the negative, indicating that we would not require any additional funds by virtue of an increase in the amount of construction funds made available. This year we were able to convince the powers that be that we did need an increased staff to carry out our basic functions. This is something I have been attempting to get into the budget process for a number of years.

It is very unusual for the Bureau of the Budget to increase the number of positions over and above the number the Department requests. This year they did increase it by 10.

Mr. FOGARTY. Do you think they had in the back of their minds that they might give you this increase, anticipating that Congress would restore this $50 million cut and put some more money in for construction research?

Dr. HALDEMAN. No; I really don't think that was the case.

Mr. FOGARTY. It sounds like that to me.

Dr. HALDEMAN. I think they agreed with us that we need to strengthen our consultation service.

Mr. FOGARTY. But this is the first time they agreed with you and it is the first time they have cut this budget by this amount of money. That is why I think it is a strange coincidence. But maybe you don't want to get in trouble with the Bureau of the Budget, and I am not going to press you for an answer.

You know how I feel about it, and the Bureau of the Budget does, too.

GRANTS FOR FACILITIES FOR MENTALLY RETARDED

Mr. DENTON. I notice from this chart which you have that you make grants to mental hospitals.

Dr. HALDEMAN. That is correct, sir.

Mr. DENTON. I have this problem down in the district which I represent. The Committee for Retarded Children has some real estate, and they would like to build a hospital for retarded children, and a school. Is there any help they can get from you on that?

Dr. HALDEMAN. We have approved 29 projects in the field of mental retardation. The Hill-Burton Act does not permit us to build facilities which are primarily either domiciliary or of an educational nature.

But facilities for the care of the mentally retarded are eligible for Hill-Burton aid to the extent that they have active medical programs and can otherwise qualify under the act.

We have a number of rehabilitation projects which have been approved for the mentally retarded.

Mr. DENTON. Just what is the distinction between a school and a domiciliary and a hospital?

Dr. HALDEMAN. There are a number of activities in a program for the mentally retarded such as the very great element of education. In other words, the mentally retarded need periods of intensive training which is primarily educational in nature.

Actually, they have classrooms and they have cottages where they can live. That type of facility, or that portion of the facility, is not eligible. But those portions that are medically oriented are eligible.

Mr. DENTON. For example, what would be eligible? I would like to know if you would give me an example.

Dr. HALDEMAN. Over in Alexandria, for instance, there is an outpatient clinic for the rehabilitation of mentally retarded children, where mothers can bring their children for speech therapy or other types of training.

Mr. DENTON. Speech therapy would be all right?

Dr. HALDEMAN. Yes. Or active medical aspects of the rehabilitation.

Mr. DENTON. What about rehabilitation? How would that do?

Dr. HALDEMAN. Rehabilitation funds have been involved in a number of these projects.

Mr. DENTON. It would have to be physical, though, and not mental. Is that right?

Dr. HALDEMAN. No, there are psychiatric services and psychologists on the staffs of these rehabilitation centers for the mentally retarded.

TUBERCULOSIS HOSPITALS

Mr. DENTON. I also notice on this list that there is still a need for tuberculosis hospitals. I thought with the great drop in tuberculosis there wasn't a need for the hospital beds for patients with tuberculosis that there had been.

Dr. HALDEMAN. The overall need for hospital beds in the tuberculosis field has been dropping rather dramatically.

Mr. DENTON. I noticed that from your chart.

Dr. HALDEMAN. We have not had an application for 2 or 3 years in this field. I will say, however, that the modern trend toward the care for the tuberculous is to close those isolated hospitals and to develop units in connection with general hospitals, units not just for the tuberculous but for chronic disease.

I think there is going to be less distinction between tuberculosis facilities and facilities for long-term care.

Mr. DENTON. Wouldn't that be putting contagious cases, though, with the other kind?

Dr. HALDEMAN. No, there are very adequate measures for preventing the spread.

HOSPITALS FOR RURAL AREAS

Mr. DENTON. I heard one doctor say this, and he is an orthopedic surgeon, that one difficulty with this program was that we build hospitals in a good many small communities and they don't have doctors there that are specialists to take care of cases; that they tried to take care of these things in these local hospitals instead of bringing them to the larger centers where they did have specialized doctors.

What do you say about that?

Dr. HALDEMAN. I think the greatest contribution of the Hill-Burton program has been to upgrade the quality of medical care in rural areas. At the time the Hill-Burton program started, most rural physicians were getting along in years and were, frankly, not being replaced by young, well-qualified physicians.

So the bringing of modern medical facilities into rural areas has attracted more certified surgeons and others to rural areas, and I feel it has been a tremendous contribution.

I recognize that the Hill-Burton program has not been of as much assistance to the larger towns as we would like, or as they would like.

Mr. DENTON. I imagine this doctor practices in a Hill-Burton hospital. But his difficulty was he thought they should bring these cases to a specialist in the larger center, and because of the hospitals they didn't do it.

Dr. HALDEMAN. You always have to weigh the desirability of bringing physicians into rural areas against the possibility that you will not have medical care. Admittedly, your larger centers can have a broader spectrum of services and provide many specialized services that your smaller center can't.

On the other hand, many of the smaller Hill-Burton hospitals have been built in areas quite some distance from these more populated areas and would not have been able to attract physicians if it had not been for the Hill-Burton program.

HOSPITAL CONSTRUCTION NOT LIMITED TO NECESSITIES

Mr. Laird. Quite recently we have read of the dedication of a hospital in Virginia which was dedicated by the Vice President. The Secretary of Health, Education, and Welfare was also present. I noticed in the newspaper accounts of this hospital dedication that there were provisions made for hi-fi and some type of television communications to the rooms so that various channels could be tuned into the rooms to entertain the patient.

Is this paid for out of the Federal matching?

Dr. Haldeman. I don't know in this individual instance. However, I would assume that the Federal Government did participate in those costs.

Mr. Laird. Back about 2 years ago I went into this matter when the Hill-Burton appropriation was justified before the committee. It was indicated at that time that you were watching hospital construction costs very carefully because the costs of staying in hospitals have gone up tremendously in the last few years.

It seems to me that some of the frills of construction have had a decided influence on patient care rates in hospitals. I can see if they want to put in elaborate communications systems and soft music that perhaps it might be all right to pay for this kind of cost with private funds. But I wonder whether the Federal Government should get into the business of piping soft music into all hospital rooms under the Hill-Burton program. This really wasn't the purpose of the program and it wasn't justified on that basis when it was passed originally by the Congress and extended by the Congress.

What is your comment on that?

Dr. Haldeman. I think undoubtedly that out of the 5,800 projects in which we have participated there undoubtedly were some activities we would question, although in general our real problem is quite the reverse. Our real problem is to try to get hospitals to incorporate features which will cut down eventually on the costs of operation.

Almost all hospital projects have a needed program or a desired program far in excess of the amount of money they have. We recently did a study of some 147 Hill-Burton hospitals, the primary purpose of which was to evaluate our standards and our guide materials. We found that, in many instances, the hospitals had neglected to incorporate features like wainscoting and getting certain areas large enough so that eventually they would experience reduced cost of operation.

As to whether television is an appropriate cost, of course that is a matter of judgment.

Mr. Laird. It is my understanding that in some of the Hill-Burton projects in the last year it has been impossible to fund the cost of piping oxygen into them because of the limited dollars. Then when we read about piping in soft music in other hospitals participating with Federal funds, it doesn't seem equitable to me. It seems to me the Federal Government should try to encourage oxygen rather than soft music.

DETERMINATION OF FEDERAL SHARE

Dr. **Haldeman.** I would certainly agree, if it is an alternative. I would say that on an average, Hill-Burton under the formula could participate in 50 percent of the cost of construction. In actual practice we only participate in about 30 percent of the costs.

So, on the average, we do not participate. All these things are judgmental. I was visiting in Minneapolis recently in a hospital where we had a comprehensive rehabilitation program and also a large psychiatric unit. We had refused to participate in the cost of the swimming pool on the basis that it was not entirely necessary. They took great delight in demonstrating to me the very valuable role of that swimming pool in their therapeutic program for patients.

I was recently a patient in a hospital myself, and I assure you that I appreciated that television.

Mr. **Denton.** I rented one when I was in the hospital.

HOPEDALE HOSPITAL

Mr. **Michel.** Doctor, have you ever heard of the Hopedale, Ill., hospital which has been constructed out in my district strictly through private initiative? I inserted into the Congressional Record on January 26 of this year, Appendix A553, the story of that little hospital.

It started in a community of 500 people by a doctor who just felt that he needed the facility and sounded off in a town meeting, and the folks got together and built a 20-bed hospital.

It was built in 16 months, no Government aid, no high-powered drive, no large gifts from industry. It was a community enterprise, accomplished with local talents and private funds invested by local people who needed and wanted a hospital and decided to do the job themselves.

It is of brick masonry construction, has general hospital facilities including surgery, maternity, emergency room, X-ray laboratory, blood bank, pharmacy with a full-time pharmacist, rehabilitation and physical medicine department with a psychiatrist in charge, dentists' and doctors' offices in the hospital.

At present they have 8 staff physicians and over 40 consultant specialists from nearby large cities.

Then the next need was for a nursing home. Again the community responded, and we have a nursing home out there. The whole story is in this Record.

But I just wondered if there are any other communities around the country that have seen the need themselves and responded locally without this constant trek to Washington for help? Do you know of any other instances like this around?

Dr. **Haldeman.** Yes; there are many hospitals built without Hill-Burton aid. About half of the hospital construction in the country is done without any assistance from Hill-Burton funds.

Mr. **Michel.** About half?

Dr. **Haldeman.** About half. About half the construction is with Hill-Burton aid; half without. We only put up about a third of the dollars for that half which does get Hill-Burton aid.

NEED FOR ADDITIONAL POSITIONS

Mr. **Michel.** I meant to say that, after that, realizing that the hospital was becoming practically jammed with the chronically ill, then the next move was a nursing home. Now they have met that need, again locally, by a 40-patient nursing home.

It is becoming quite a little medical complex here in a community of 500, which really ought to serve as quite a shining example for a number of other small communities around the country.

Mr. Kelly, you made one mention in response to the chairman's questions with respect to the Budget Bureau's interest, a cutback on their part of $50 million. But they, as I understand it, came up with an increase of 10 people in one category.

Mr. **Kelly.** That is correct.

Mr. **Michel.** What would that have been for?

Mr. **Kelly.** They have been much concerned with the data that is available on what the total bed need is in the United States in the general hospital area. They felt that if the Public Health Service had an augmented staff, they could work closer with State agencies in the identification of this total need.

So one of the purposes of this was in the development of State plans to permit a closer working relationship between the Public Health Service and the State agencies.

Isn't that a proper statement of it?

Dr. **Haldeman.** Yes.

Mr. **Michel.** So in that sense they recognized there must be a need there, but really for more study rather than for actually more construction of hospitals.

Mr. **Kelly.** Yes. Of course they did include in the budget $100 million. The question was whether or not we were correct in the total statement of the backlog of need. The proposal was that it should be at the maximum authorization of $150 million. I don't think they questioned the need. They questioned the degree of it.

HILL-BURTON CONSTRUCTION STANDARDS

Mr. **Michel.** I have one more question in keeping with some constant complaints that I get from the Forest Park Foundation back in Peoria, Ill., which has been quite instrumental, for example, in helping the Kiwanis Club get a nursing home constructed in our hometown, and the St. Francis Hospital and the Methodist Hospital in Peoria in their rehabilitation work.

The foundation has contributed good sums of money toward this end. But time and time again I get the complaint that here people seem to be wedded to these old stinted views that doors must be such and such and that hallways such and such, and that they have been reluctant to modernize or to make improvements.

Time and time again they have run up against these snags, when they on their own initiative have gone through some experimental stages and found some real good progressive steps that could be taken.

Are we in this area doing anything to improve this? You made mention, in response to questions from the chairman, that there has been considerable progress made in hospital construction, in different architectural designs and what not.

I wonder if it has been enough?

Dr. **Haldeman**. Is your question related to whether we have given enough assistance in upgrading the design of nursing home facilities?

Mr. **Michel**. Are we finding ourselves in too much of a straitjacket when it comes to a hospital participating in Hill-Burton funds and adhering to particular standards? Sometimes that standard is such a straitjacket that it doesn't leave enough leeway where sometimes that flexibility is a desired end.

Dr. **Haldeman**. We have minimum standards of construction equipment, and they are what I would consider minimum. There are only a very few areas in a nursing home where there are any mandatory space requirements.

STANDARDS FOR NURSING HOMES

I think there is a good deal of flexibility because we have had nursing homes built under our standards which cost as little as approximately $4,000 a bed; and others connected with hospitals, which have had greater services, for over $16,000 a bed.

We have recently completed a study of 20 Hill-Burton nursing homes and 20 nursing homes selected by the American Nursing Home Association which were built outside of the Hill-Burton program.

Although our architectural and engineering review of these individual homes is not complete, we have found in essence you get just about what you pay for. The nursing home sponsor who is cutting corners usually pays for it in higher costs of maintenance and operation. It is not so much the space requirements as the type of finishes and the like.

Mr. **Michel**. I don't recall some of the specifics, but one that does come to mind is in this area where the Forest Park Foundation feels they would like to build nursing homes to give the elderly people as much of a family environment as possible.

If they feel that they can cook themselves, by golly, let them cook and don't make them go to some centralized dining room. In other words, they want to make it as much a home as they possibly can and to have the people actually doing something with their hands as best they can, when they are able to do it, rather than institutionalizing these homes to the degree where they all feel they are just so many sheep in a big organization.

They would like to keep this thing as individualized as they possibly can. I think in this area they have run into some snags.

Dr. **Haldeman**. I know nothing in our regulations that would prohibit the sort of thing you are recommending. The most frequent criticism of our regulations that you hear is from an operator who wants to build a nursing home without providing space for dining, rehabilitation, and recreation.

In other words, they would like to say that all they need is the bedroom. They would want to bring the patients their meals in the bed, and they are literally nursing the patients to death.

We do require 50 square feet for 70 percent of the patients in these three areas—recreation, dining, and rehabilitation.

We are trying desperately to upgrade the quality of our nursing homes. As you know, because of the tremendous need for facilities for long-term care patients, in many States nursing homes leave a great deal to be desired. Some States have adopted our standards as their minimum standards for licensing in a further attempt to upgrade the quality of nursing homes that are not being built under the Hill-Burton Act.

HOSPITAL AND MEDICAL FACILITY RESEARCH

Mr. **Laird.** Last year this committee made available to you a total of $11,200,000 in the area of hospital and medical facility research.

Dr. **Haldeman.** That is correct, sir.

Mr. **Kelly.** May I clarify that? The net effect of the final action of the Congress was to make available to us $10 million.

Mr. **Laird.** Not necessarily. It depends on how you apportion the funds.

Mr. **Kelly.** That's right. Let me say that what the appropriation act did was to provide only $140 million—$140,028,000—under part C, but with a proviso that instructed the Surgeon General to make such redistribution of the funds provided under part G, and research and operations as to bring that to $150 million.

As you say, the Surgeon General could have done this in any one of a number of ways. The way in which it was done was to make this distribution so that only $10 million was available for the research portion of the program, and that is the amount authorized in the Community Facilities Act.

Mr. **Laird.** As far as the appropriation level was concerned, the appropriation level carried in the bill was——

Mr. **Kelly.** $11,200,000; but with that instruction to make a redistribution, which was made.

Mr. **Laird.** That was optional whether this program would be affected or not.

Dr. **Haldeman.** That is right. It could all have been taken out of nursing homes, chronic disease, hospitals, or rehabilitation facilities.

Mr. **Laird.** But the option was exercised and $1,200,000 was taken out of this account.

Mr. **Kelly.** That's correct, sir.

INTENT OF CONGRESS REGARDING CONSTRUCTION RESEARCH

Mr. **Laird.** Leaving a total of $10 million available to you. In addition to this, there was placed in reserve an amount of $1,883,000. I notice that in this area the intent of our committee report has not really been followed.

In our report making this $10 million appropriation, which originated here in the House of Representatives, we envisioned a program in which hospital construction research facilities in selected areas would be given primary consideration.

You are familiar with the language of our committee report on page 36.

Dr. **Haldeman.** Mr. Chairman, this was a report, a recommendation of $10 million, under the authority of section 433A of the Public Health Service Act, rather than under section 636.

Mr. **Laird.** That is correct. But the intent is very clear here as to why the $10 million was appropriated.

Dr. Haldeman. At the same time that this was being considered, as I am sure you recall, the administration had recommended to Congress, through the Community Services and Facilities Act, that the ceiling be removed from the research authority contained in section 636 and that we be given authority for nonformula construction grants.

At the time the Department sent that legislative proposal to Congress, it indicated that an amount of $5.2 million would be requested in relation to the administration's proposal under the Community Facilities and Services Act.

When the community facilities and services bill passed, it contained a ceiling of $10 million and also the authority for our nonformula construction grants. So we interpreted this to mean that we would spend a total of $5.2 million for the program that had been submitted to Congress under our proposal; the remainder, which we felt was given to us because of the interest of your committee in this particular program, would be for this large type of project.

SENATE AND CONFERENCE ACTION

Mr. Laird. You realize the Senate didn't put in a nickel for this, don't you? Every bit of this money was eliminated by the Senate. We insisted upon the position of the House in conference.

Our conferees were very firm in their insistence. We included the money and made it available under new authority for nonmatching grants which was carried in the Community Services and Facilities Act, which passed between the time this bill was first acted upon in the House and the time that the conference committee met.

But this was discussed on the floor of the House the day the conference report was adopted. Are you familiar with the discussions the day the conference report was adopted?

Dr. Haldeman. I am not familiar with the details; however, we have abstracted all the discussions that have gone on in regard to this activity. I am generally familiar with the discussions on both the Senate floor and the House floor.

SHIFT FROM CONSTRUCTION TO PERSONNEL

Mr. Laird. It seems to me that a lot of this money is being spent on personnel. Here we have a budget before us where last year you had an estimate of 44 people in that area. Here we have a budget before us for 1963. You are cutting back this program almost in half, but at the same time you are increasing personnel by six positions. Isn't that correct?

Dr. Haldeman. That is correct, sir.

Mr. Laird. You are cutting the experimental construction from the $4 million which you carried in your revised budget for fiscal year 1962 back to $600,000; so you are getting completely away from the intent of the committee in making these funds available.

Dr. Haldeman. Mr. Chairman, the program which we are recommending is along the lines of our very carefully thought-out program which was submitted in connection with the administration's request to amend section 636. I have on previous occasions before this committee commented on the need for an expanded research program in hospital research.

I certainly feel that in connection with the justifications given in connection with the testimony on the Community Facilities and Services Act that we are being consistent in the way we are utilizing these funds.

Mr. LAIRD. I would like to just quote to you from the record of September 11, 1961. The chairman of this subcommittee made a statement on the floor of the House on September 11 talking about the conference report, which I think rather clearly indicates what the legislative intent was.

> The special provision in the bill, as passed by the House, of $10 million in matching funds for construction of experimental hospitals has been retained but has been transferred from the NIH appropriation to the appropriation for hospital construction activities in anticipation of the authority contained in H.R. 4998.

My problem here is in understanding why greater emphasis wasn't placed on construction in accordance with the intent of this committee and in accordance with the intent of the Congress, and very clearly set forth in the Congressional Record in the discussions which I had on the floor and the discussions which the chairman had on the floor of the House.

REASONS FOR DEPARTMENT'S ACTION

Dr. HALDEMAN. Mr. Kelly, do you want to discuss this history?

Mr. KELLY. I think that it was our intention to recognize the views of this committee and the final action of the Congress on it. It was our view that originally, as you had made the proposal, the intent in the bill was exclusively for the nonmatching construction projects.

Mr. LAIRD. It was matching. We had a provision in there for matching.

Mr. KELLY. Nonformula distribution of the experimental construction projects is probably a better way to phrase it; and that this was converted to the Community Health Services and Facilities Act authority for both research and the demonstration of experimental construction.

Mr. LAIRD. We didn't have that authority when this bill was up, even when the conference committee was meeting.

Mr. KELLY. No; as a matter of fact, I think when it was enacted, it was enacted contingent upon passage of the Community Health Services and Facilities Act, which was enacted shortly after that. It had been agreed to in conference——

Mr. LAIRD. It had passed both the House and the Senate, so we decided to use that particular language rather than section 433(a).

Mr. KELLY. By reason of having used that language, which was limited to an authority of $10 million in appropriations, when the administration submitted its supplemental proposals to carry out the authorities of the Community Health Services and Facilities Act, it did not submit a request for supplemental funds in the hospital research area.

Mr. LAIRD. It seems to me you should have submitted a supplemental request if you were going to use the funds for another purpose.

Mr. KELLY. There was no authorization left, Mr. Laird. The $10 million is the amount of authorization contained in the act. So we interpreted the action and established our administrative proposals prior to the advent of administrative reserves that we would use such part of the $10 million as is consistent with the program that we laid before the Congress when they enacted the Community Health Services and Facilities Act, which was, you know, when we submitted a 5-year cost estimate to the legislative committees which showed that we planned to have $5,200,000 in the research area, including the demonstration of small experimental construction projects.

Then we set aside the balance of $4,800,000 for the large type of research construction projects apparently envisioned by the committee when it provided the $10 million initially.

We felt that this was in keeping with the action of Congress on the Community Health Services and Facilities Act and the action of the Congress on the appropriations bill.

This was further diminished by reason of the fact that we found it necessary to apply a reserve of $1,883,000 against our planned program of $10 million.

Mr. Laird. I just happen to disagree with you on this matter. I think the intent was very clear on this. What are you using this $4 million for in 1962?

STATUS OF THE EXPERIMENTAL CONSTRUCTION PROGRAM

Dr. Haldeman. The $4 million for the nonresearch——

Mr. Laird. For the experimental construction.

Dr. Haldeman. We have not approved any projects as yet and don't plan to until the June meeting of the Council. The reason for this is the time it takes for an applicant to develop his project, including schematic drawings. For instance, in the case of the project at Rochester, Minn., they have submitted an application, but have not as yet developed their drawings to a place where they can be reviewed. So for this reason, this time element, the appropriation language here contains language which would permit money appropriated pursuant to this activity to be made available until expended.

Mr. Laird. This program, then, really hasn't gotten off the ground.

Dr. Haldeman. No. As I indicated earlier, we have applications that would total about $20 million. But there will be no action on them until the June council meeting. This will give applicants an opportunity to develop the kind of application which will permit a very thorough review.

These projects are like other construction projects. From the time the applicant starts to work on a project some months elapse in the development of the projects and the development of the necessary supporting documents such as schematic drawings.

Mr. Laird. I am speaking only for myself, but it was my understanding that perhaps two or three projects might be approved out of this $10 million this year.

Dr. Haldeman. We are certainly planning to approve projects in this fiscal year.

Mr. Laird. I hope it isn't spread around, now that you are cutting it back, to the point that you don't have any facility where you can really get some good information. If you try to spread this all over the country, it seems to me that it will limit the amount of information that you are going to get.

Dr. HALDEMAN. You mean the number of projects we will be able to review?

SIZE OF GRANT

Mr. LAIRD. What is your recommendation as far as the amount to be granted to any one project?

Dr. HALDEMAN. I think it depends on the individual application. As I say, we have developed tentative guidelines which we hope the Federal Hospital Council will act on at its March meeting. It is very difficult to prejudge what the review mechanism, including the action of the Federal Hospital Council, will be on individual projects.

Mr. LAIRD. What is your recommendation as far as the use of these funds?

Dr. HALDEMAN. It is along the lines which Mr. Kelly outlined in regard to how the money is divided among the larger projects and our own program.

Mr. LAIRD. Do you have any limits in mind regarding the amount you will grant to a single project?

Dr. HALDEMAN. No, frankly, I don't. Perhaps you are aware that the Senate made two amendments in section 636. One amendment introduced language which made it unmistakably clear that these funds could only be used in relation to that portion of a facility that was experimental in nature.

If you will take a hypothetical case, let's say an applicant seeks funds for nursing units which are the experimental portion of a hospital. That would permit some 40 percent of the project to be considered as experimental in nature.

If, in addition, the applicant is able to show that the design in certain other areas to be studied, such as the surgery outpatient department, is experimental in nature, then the project would be eligible for more.

So I would anticipate that there will be one or more projects approved which have substantial amounts of money.

LOCAL PARTICIPATION IN COST

Mr. LAIRD. You are familiar with the limitation which we wrote into the bill?

Dr. HALDEMAN. Two-thirds of the cost of the experimental portion.

Mr. LAIRD. Under the basic authority you are using there is no provision for that.

Dr. HALDEMAN. That is correct.

Mr. LAIRD. You are suggesting that that limitation be carried forward next year?

Dr. HALDEMAN. That is correct, sir.

Mr. LAIRD. I am disappointed in the way this program has moved forward, and also in the allocation that was made of the $10 million. We made a legislative record on this matter indicating the clear intent of Congress at the time the conference report was adopted on the floor of the House, and it seems to me that the program has moved very slowly.

That is all I have, Mr. Chairman.

Mr. **Fogarty**. Doctor, you have some reservations, I guess, from what I have heard, about this project in Minnesota. That is what the grapevine tells me anyway.

Dr. **Haldeman**. Until they get their completed application in, I think I would be in a difficult position to really evaluate the project.

Mr. **Fogarty**. Do they have their application in yet?

Dr. **Haldeman**. They have an application in, but they have not submitted the drawings that are needed to evaluate it.

Mr. **Fogarty**. Is this a general hospital?

Dr. **Haldeman**. Yes, sir.

Mr. **Fogarty**. How many beds? Four hundred and some?

Dr. **Haldeman**. As I recall, they are proposing between 400 and 500 beds.

Mr. **Fogarty**. What was their experimental unit? Six or twelve?

Dr. **Haldeman**. It is a circular unit for 12 beds for an intensive care unit.

Mr. **Fogarty**. I am sure you read their testimony last year. Is there anything in their testimony that you do not agree with? Do you think they are wrong in their conclusions anywhere along the line?

Dr. **Haldeman**. They testified in relation to great savings, as you recall, in relation to their program.

Mr. **Fogarty**. In that type of patient care, intensive care?

Dr. **Haldeman**. Intensive care. The bulk of the savings which they reported was due to their method of organizing the patient care services. The intensive care unit does away with the necessity of private duty nurses, thereby resulting in a considerable saving to the patient.

You will have that same saving on a rectangular unit, or on a unit where you just put your critical patients in rooms with maybe five or six patients. So the saving is inherent in the progressive patient care setup.

Mr. **Fogarty**. They claim from the design, I am pretty sure. I haven't reread the testimony, but I will, since you made the statement. One of the claims they made was that there were savings because it was in this circular design. I may be wrong, but I don't think I am.

Dr. **Haldeman**. The bulk of the savings was as a result of introducing progressive patient care. I want to be perfectly honest that they also reported——

Mr. **Fogarty**. We will check their professional judgment against yours.

Dr. **Haldeman**. Let me go on and explain that their study did show that, as far as the time it took nurses to serve patients in the circular unit, that there was a saving as a result of the circular unit over what the cost was in the rectangular unit which they studied.

But the bulk of the savings was the result of being able to do away with special duty nurses, which can be done whether your unit is circular or is rectangular.

The program which they are outlining at Mayo's is a very comprehensive one, and I have every hope it will be very beneficial.

Mr. **Fogarty**. That is why we added $10 million for the research last year. We thought they were pretty reputable people who came here and testified. Is there any question as to their reputation as doctors? They have been making this study for how many years?

Dr. HALDEMAN. Some 3 or 4 years, I think.

Mr. FOGARTY. Do you have any question about their reputation?

ANALYSIS OF THE PROJECT RESULTS

Dr. HALDEMAN. No, I don't think there is any question but what they have done some very worthwhile studies.

Mr. FOGARTY. But you don't agree with their conclusions?

Dr. HALDEMAN. No, I don't agree with their conclusions regarding the reduction in cost, if I have interpreted what they have said correctly. I might say I have discussed this with them myself and indicated to them that if I were again asked in the course of a hearing about the reduction is cost—as you may recall, you asked me last year—I would not remain silent on this subject.

Mr. FOGARTY. What do you think about the reduction in cost?

Dr. HALDEMAN. I think that their studies showed there was some reduction in cost in the circular unit for intensive care patients as compared to the rectangular unit which they studied. However, the largest share of the reduction in costs which they reported was due to the introduction of a new method of organization of the hospital under a progressive patient care system. It was not related to the circular design; instead it was related to their ability to eliminate special nursing care, special duty nursing.

Mr. FOGARTY. What about their claim that the nurse would walk a mile less in an 8-hour shift than in conventional hospitals?

Dr. HALDEMAN. I think that portion of the study was very carefully worked out. At least in reading it I thought they had very clearly demonstrated that there was a reduction in the amount of time it would take nurses in such areas as walking between the patients.

Mr. FOGARTY. What about the claim that the patients themselves liked this sort of an arrangement because they felt a little more security because they could be seen from a central point, and they could see the central point of operation?

Dr. HALDEMAN. I think there is no question but what they did demonstrate this. I might say that that has also been demonstrated in relation to other studies of progressive patient care.

HOSPITAL DESIGN FOR INTENSIVE CARE

Mr. FOGARTY. With the wing-type hospital that is not possible. If you have one wing for intensive care, I don't know of any other design that would make that possible, do you?

Dr. HALDEMAN. Oh, yes; there are other designs for intensive care.

Mr. FOGARTY. With a wing branching out from the center of the hospital, can it be designed so that every patient in every room can see the center of activity?

Dr. HALDEMAN. Yes.

Mr. FOGARTY. I just can't comprehend that.

Dr. HALDEMAN. Many hospitals handle their intensive care patients in a single room with five, six, or seven beds with the nursing activities in the center and separated by curtains, for instance, where you get the same type of arrangement.

Mr. Fogarty. This hospital you talked about, the Rhode Island Hospital, is a relatively new hospital. They have an intensive care unit, but nothing like this where patients could see the nurse all the time.

Dr. Haldeman. There are many, many hospitals, Mr. Chairman, that have incorporated intensive patient care principles into the design of the hospital. I think the folks at Mayo's have very nicely demonstrated that the circular unit design for an intensive care unit is a very excellent one. I have no qualms about recommending it as a very good design for an intensive care unit.

Mr. Michel. Mr. Chairman, would you yield for a question?

Mr. Fogarty. Yes.

REACTION FROM NURSES ASSOCIATIONS

Mr. Michel. I must preface my question by saying I just assumed this circular proposition was underway, and many other Members of the House believe likewise. I was kind of amazed that this thing is really still way back in the embryo stage.

Have the nurses associations officially or unofficially made any representations of this kind of a proposition, feeling that this is "snookering" some nurses out of a job if we have this kind of a circular hospital?

Dr. Haldeman. I know of no official action. Actually, a lot of hospitals have instituted progressive patient care because of the shortage of private duty nurses.

Mr. Michel. We know this runs the cost up, this 24-hour care.

Dr. Haldeman. That is correct. Also, you can have specially trained nurses in a unit such as this.

Mr. Michel. Is it conceivable that the nursing association would drag its feet on a proposition like this?

Dr. Haldeman. I have seen no evidence of it.

Mr. Michel. None at all?

Dr. Haldeman. No.

Mr. Fogarty. In your talks with these people from Mayo's, were you able to convince them that they were not right in everything they claimed or do they still disagree with you?

Dr. Haldeman. On what point?

Mr. Fogarty. Any point where you were in disagreement.

Dr. Haldeman. I don't think there is any disagreement between them and myself, as far as I know, on the question we have just been discussing, on whether the saving comes from the design and that portion of it that came from the decreased cost related to not requiring special duty nurses.

PROGRESSIVE PATIENT CARE

Mr. Fogarty. They say—

> Some hospitals have considered various phases of progressive patient care, but to date there has been no critical evaluation of the quality of care or its cost. This should be done before it is more widely copied.

Under ideal and controlled conditions is progressive patient care of a higher quality and lower in cost?

Dr. Haldeman. I think additional research in the field of progressive patient care is very desirable and I would encourage it.

Mr. Fogarty. As far as the other groups are concerned, those who just require general medical attention, we have no idea what effect this type of hospital design would have, do we?

Dr. Haldeman. There are many areas of progressive patient care that require additional exploration.

Mr. Fogarty. I am talking about those other areas——

Dr. Haldeman. The other elements.

Mr. Fogarty. We don't have any studies on that part of the population in the hospital, do we?

Dr. Haldeman. There are a number of studies going on in relation to the whole area of hospital use.

RESEARCH IN HOSPITAL DESIGN

Mr. Fogarty. The only revolutionary idea in hospital design that was ever suggested to this committee was presented last year, and that is why we put $10 million more into the budget.

Is there anything else you want to say about this circular unit or this type of construction? Or do you think the old rectangular design is still good enough?

Dr. Haldeman. I would only have one comment, Mr. Chairman. The Mayo project, as a number of other projects in the country, are incorporating the philosophy of progressive patient care as the basic method in which they are organizing their services.

EVALUATION OF THE COST OF PROGRESSIVE PATIENT CARE

The basic work on progressive patient care was done by the Public Health Service out of funds appropriated under section 636.

Mr. Fogarty. Do you have a report on the quality of care and its cost?

Dr. Haldeman. We have a project on the evaluation of costs on progressive patient care.

Mr. Fogarty. And the quality of care along with it?

Dr. Haldeman. We have a project at the present time which is studying the impact of progressive patient care on patients with myocardial infarction. We picked that particular area because the treatment hasn't changed appreciably in the last 6 or 7 years and we are able in our work in Connecticut to select a hospital where the medical staff has been fairly constant; and we are evaluating the patients with myocardial infarction for untoward incidents, both before the advent of progressive patient care and after it.

Any study which has an objective of trying to determine whether the quality of medical care has been improved under one system as compared to another system is very difficult.

Mr. Fogarty. Tell me, now, just what hasn't changed in this kind of care?

Dr. Haldeman. What hasn't?

Mr. Fogarty. You say it hasn't changed in the last 6 or 7 years.

Dr. Haldeman. The reason we picked myocardial infarction is that the method of treatment at this particular hospital has not changed substantially.

Mr. Fogarty. This hospital?

Dr. HALDEMAN. Yes.

Mr. FOGARTY. What is the method of treatment in the general hospitals today?

Dr. HALDEMAN. Of myocardial infarction?

Mr. FOGARTY. Yes.

Dr. HALDEMAN. I would like to ask for some help from the Surgeon General. This is his area.

Mr. FOGARTY. He is an expert in the field, so we will go to you, Dr. Terry. What is the general method of treatment?

Dr. TERRY. Generally speaking, the method of treatment of myocardial infarction is affording the patient rest, oxygen therapy when indicated, and maintaining close surveillance over the patient so that if sudden, unexpected events occur such as a sudden drop in blood pressure or such as a change in the nature of the cardiac rhythm, this sort of thing can be detected very quickly and appropriate therapy instituted.

In addition to that, there is a considerable variation among the physicians in the country. But, generally speaking, the tendency is toward the early use of anticoagulants in the treatment of these patients, first starting with heparin and later using one of the cumerol type of drugs.

Mr. FOGARTY. Is the naval hospital out in Bethesda old fashioned in this sort of treatment now? Or are they considered to give pretty good treatment for these cases?

Dr. TERRY. I had always considered this a good hospital.

Mr. FOGARTY. Do you think this sort of treatment could be improved because of the study that is going on in Hartford?

Dr. TERRY. I am not acquainted with the details of this study, sir.

Mr. FOGARTY. Is it Hartford?

Dr. HALDEMAN. Manchester Memorial Hospital, Manchester, Conn.

Mr. FOGARTY. There isn't anything revolutionary about the design of the naval hospital in Bethesda that I know of, is there? It has a tower; that is all. That is the only difference I see.

I think a hospital of that design certainly can be improved on, and that is considered to be a good hospital. Don't you think that design could be improved on?

Dr. HALDEMAN. I certainly do.

Mr. FOGARTY. Do you want to say anything more, Doctor? Is there anything you want to straighten out before you leave?

Dr. HALDEMAN. No, thank you, sir.

(The following was subsequently submitted:)

(The following statement is submitted in amplification of the Public Health Service position regarding experimentation with the design of health facilities:)

I have a firm belief that experimentation with the architectural design, functional layout, and equipment of health facilities is necessary if we are to continue the progress made in these areas since the Hill-Burton program was activated.

It does not necessarily follow, however, that the Federal Government must participate in the total cost of constructing a hospital or other health facility in order to test and evaluate new theories of architectural design or functional layout which pertain only to a particular segment of a hospital, such as surgery, laboratory or nursing units. Indeed, much is to be gained by spending relatively small amounts of Federal funds in a relatively large number of facilities as a means of testing and evaluating new concepts, rather than relying largely on the investigatory staff and controlled conditions established in one or two locations. Moreover, the experimental construction program will be slowed down significantly if the limited funds available each year are used to construct one or two total facilities which incorporate some novel design features but which, in the main, are designed and constructed along conventional lines.

It is my opinion that we should and can stimulate the construction of experimentally designed units, such as surgery, laboratory or nursing units, in several locations by assisting only in the cost of those portions of the facility which incorporate novel or new features of architectural design or functional layout. We feel that sponsoring communities or organizations should, in these instances, be required to construct conventional units of such facilities with their own funds or with regular Hill-Burton grants if such grants are available under the priority system of the State.

Mr. Fogarty. Thank you very much. We will recess until 1:30.

AFTERNOON SESSION

AIR POLLUTION

Tuesday, February 6, 1962.

WITNESSES

VERNON G. MacKENZIE, CHIEF, DIVISION OF AIR POLLUTION

DR. ROBERT J. ANDERSON, DEPUTY CHIEF, BUREAU OF STATE SERVICES

PETER J. BERSANO, FINANCIAL MANAGEMENT OFFICER FOR ENVIRONMENTAL HEALTH PROGRAMS

JAMES F. KELLY, DEPARTMENT BUDGET OFFICER

Object classification

[In thousands of dollars]

		1961 actual	1962 estimate	1963 estimate
11	Personnel compensation:			
	Permanent positions	1,624	2,214	2,389
	Positions other than permanent	61	81	85
	Other personnel compensation	8	5	5
	Total personnel compensation	1,693	2,300	2,479
12	Personnel benefits	207	275	305
21	Travel and transportation of persons	191	269	310
22	Transportation of things	35	40	40
23	Rent, communications, and utilities	53	60	70
24	Printing and reproduction	41	40	45
25	Other services	113	155	155
	Services of other agencies	669	712	800
	Research contracts	1,180	1,200	1,385
	Payment to—			
	"Bureau of State Services management fund"	539	685	760
	"National Institutes of Health management fund"	13	18	37
26	Supplies and materials	176	180	210
31	Equipment	446	262	300
32	Lands and structures	27	----------	----------
41	Grants, subsidies, and contributions	1,889	1,968	3,173
	Total obligations	7,272	8,164	10,069

Personnel summary

	1961 actual	1962 estimate	1963 estimate
Total number of permanent positions	296	375	410
Full-time equivalent of other positions	10	13	13
Average number of all employees	264	356	386
Number of employees at end of year	317	410	450
Average GS grade	7.1	7.3	7.3
Average GS salary	$6, 260	$6. 559	$6, 516

Program and financing

[In thousands of dollars]

	1961 actual	1962 estimate	1963 estimate
Program by activities:			
1. Grants:			
(*a*) Research	1.766	1.855	2.723
(*b*) Training	122	113	450
2. Research, training, and technical services	5.144	6.116	6,896
Total program costs [1]	7,033	8,084	10,069
Change in selected resources [2]	239	80	--------------
Total obligations	7,272	8,164	10.069
Financing:			
Comparative transfers from other accounts	−7,272	--------------	--------------
Unobligated balance lapsing	--------------	425	--------------
New obligational authority	--------------	8.589	10,069
New obligational authority:			
Appropriation	--------------	8,800	10,069
Transferred to "Operating expenses, Public Buildings Service," General Services Administration (75 Stat. 353)	--------------	−211	--------------
Appropriation (adjusted)	--------------	8,589	10,069

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[1] Includes capital outlay as follows: 1961, $215,000; 1962, $385,000; 1963, $263,000.

[2] Selected resources as of June 30 are as follows: Unpaid undelivered orders, 1960, $187,000; 1961, $426,000; 1962, $506,000; 1963, $506,000.

Mr. FOGARTY. The committee will come to order.

We have before us now the request for the air pollution program. Mr. MacKenzie, do you have a statement for the committee?

GENERAL STATEMENT

Mr. MACKENZIE. Mr. Chairman, I have a statement which, with your permission, I would like to submit for the record and summarize orally.

(The statement follows:)

STATEMENT BY CHIEF, DIVISION OF AIR POLLUTION, ON "AIR POLLUTION, PUBLIC HEALTH SERVICE"

Mr. Chairman and members of the committee, the President, in his message on natural resources to the Congress in February 1961, proposed that the Public Health Service "should provide for the control of air pollution" and added that "we need an effective Federal air pollution control program now." In his state of the Union message last month, the President reiterated his concern about air pollution. The subcommittee members are aware, of course, of the reasons for this concern with the serious threat to our vital air resource. Our country is in a continuing and intensifying pattern of industrialization and urbanization, which results in increasing quantities and greater concentrations of pollutants discharged to the atmosphere. The damages to property from air pollution are now very large—large enough in fact that billions of dollars annually could be saved nationally by taking corrective action instead of allowing the pollution to continue. But the need to protect our air resource, as the President urged, goes far beyond economic considerations, since it involves a serious hazard to the health of the American public.

RESPIRATORY DISEASES

The Public Health Service's research program on the health effects of air pollution has continued to confirm an association between air pollution and such serious effects as lung cancer and cardiopulmonary disabilities. Early studies, primarily of a statistical character, provided evidence of a serious potential health hazard. These studies have been followed up by laboratory and epidemiological investigations, and significant findings are now becoming available. Studies have shown that common air pollutants do adversely affect respiratory capacity. These effects can be acutely serious to individuals with impaired respiratory function, such as asthmatics or persons suffering from emphysema. In one large city, for example, the incidence of asthmatic attacks among susceptible individuals was shown to increase proportionately with the concentration of sulfur dioxide pollution to which they were exposed.

One highly interesting study reported during the past year tends to extend to human beings the laboratory findings that animals exposed to common irritant gaseous pollutants become more susceptible to respiratory infection. Thus, in a study involving women factory employees of a large electronics firm, absenteeism due to respiratory illnesses was shown to vary directly with average sulfate pollution levels in the several cities in which the factories were located.

It is, of course, very difficult to determine whether prevalent chronic respiratory diseases are caused, to a major extent directly by air pollutants, because of the commonly long period of development of such conditions and probable multiple factors of causation. Two significant laboratory findings have occurred in the past year which bear directly on this important problem:

In the first, a typical form of human lung cancer has been produced in laboratory animals by exposure, through inhalation, to air contaminated with ozonized gasoline. The mice in which these lung cancers developed had recovered from influenza virus infection.

In the second, lung pathology identical to that of human emphysema was produced in laboratory animals by exposing them to air polluted with oxides of nitrogen, a common contaminant of urban atmospheres. The applicability of such findings to humans can, of course, be determined only by suitable future epidemiological studies.

In recent years, there has been an increasing incidence of disabling respiratory illness in this country. Emphysema, for example, a serious incapacitating, chronic lung disease, is now the leading respiratory cause of disability. It affects over a million people in this country. It is cited as the direct cause of approximately 9,000 deaths annually, as well as contributing indirectly to many more. The incidence of this disease is increasing more rapidly than any others for which data are available, and the disease is found to a greater extent in urban areas.

Emphysema, like other respiratory diseases which have been associated with air pollution such as chronic bronchitis, most asthma, and most lung cancer, cannot now be cured in the individual patient. For this reason, prevention of the development of such chronic conditions is of paramount importance. Thus, the relationship between such diseases and air pollution must be clarified—for the most effective means of preventing illness and death from such respiratory diseases among millions of people may well be through intensified control and elimination of the offending environmental hazards such as certain types of air pollution. Studies of the air quality of numerous cities in the Nation indicate the presence of pollutants which have been associated with these chronic respiratory diseases.

CONTROL OF AIR POLLUTION

Effective control of air pollution is today a formidable and challenging task, but one which must be accomplished if we are to retain and develop further the advantages of our industrial and urban society. The protection of our vital air resource requires action by all levels of government and involves two broad areas of governmental action:

First, the improvement of our knowledge of the characteristics and dissemination of air pollutants, of the effects of pollutants on people and property, and of the technical and administrative measures suitable for prevention of the undesirable effects; and, second, the development of adequate programs in all areas of the Nation, where needed, for the regulatory control of air pollution through the application of known technical procedures.

RESPONSIBILITY FOR CONTROL OF AIR POLLUTION

Some progress has been made in both of these broad fundamental areas of needed work but much remains to be done. Under the Federal Air Pollution Act of 1955 (Public Law 84–159), the primary responsibility for development and conduct of air and pollution regulatory control programs rests with the States and local governments. In the development of adequate regulatory control programs, several formidable types of obstacles must be overcome. These obstacles involve technical questions of the extent and character of air pollution and the appropriate means for its control in the particular area of jurisdiction. They involve problems of administrative organization particularly as concerned with intergovernmental relationships in metropolitan areas. They involve difficult problems of local government financing of activities in this new and complex area of needed activity. The rate of progress in the development of regulatory control programs undoubtedly should be accelerated and is a matter of national concern.

The Federal program is designed to exert leadership in obtaining such acceleration of State and local program development through broad support provided by research, technical assistance on specific problems, and the training of technical manpower.

The details of the program planned for 1963 are contained in the justification material on the budget request submitted for the consideration of the committee. An increase of $1,905,000 is requested for 1963 to permit expansion in the research and training activities.

GRANTS

The major portion of the increase requested is for research and training grants, primarily to universities. Research grants provide support for fundamental investigations designed to produce the basic information upon which control activities can be developed. Important findings have resulted from the support of air pollution studies by such research grants support, and it is considered highly desirable to broaden in this way the utilization of the imagination and technical competencies which are found in the universities of this country. The technical challenge of air pollution problems, in the biological-medical and the engineering and physical sciences fields, has occasioned an increase in research interest among the universities, and the number of applications for support which have been approved by our review councils has steadily risen. The increased funds requested will permit a greater share of the approved grant applications to be supported.

RESEARCH

An increase of $658,000 in research funds will be used directly by the Public Health Service in its laboratory and field research program, and for the support of research contracts with non-Federal organizations and with other Federal agencies. such as the Weather Bureau, whose specialized technical competencies are utilized by the Public Health Service as a means of accelerating the research effort.

Much emphasis has been placed on the research program concerned with the effects of air pollution related to automotive emissions, stemming principally from the requirements of Public Law 86–493, the Automotive Exhaust Research Act. The long-range nature of this type of research will require continuation in 1963, but the increased research operating funds will be applied to other critically important, if perhaps not as well-known, areas of air pollution study. Some of the key areas for increased emphasis are studies of atmospheric photochemistry; studies of the relationships of air pollutants to respiratory diseases, with special attention on emphysema; the effects of air pollution on environmental levels of suspected carcinogens; and respiratory disease surveys.

TRAINING

Manpower studies related to requirements for progress in the control of air pollution have resulted in estimates of a national deficiency of approximately 4,000 specially trained air pollution personnel during the period through 1970. The fulfillment of this manpower requirement is a key element in the attainment of essential national objectives for air pollution control. The increased funds requested for training grants to universities will provide the initial step in the development of an expanded graduate level training capacity in this country. These grants will support the development and improvement of curricula related to air pollution research and control at medical schools, schools of public health, engineering schools, and related technical institutions. In addition, the 1963 estimates provide for some expansion of the direct short-term training program of the Public Health Service, with emphasis on field courses designed to reach the maximum number of currently employed persons needing the training offered.

THE URGENCY OF AIR POLLUTION CONTROL

Mr. MacKenzie. The members of this group are fully aware, I am sure, of the reasons behind the note of urgency on air pollution contained in the President's message on natural resources to the Congress last year. The message said that the Public Health Service—

> * * * should provide for the control of air pollution * * * we need an effective Federal air pollution program now.

In his state of the Union message last month, the President reiterated his concern about air pollution.

In brief, air pollution is a heavy economic burden to our country; it is a serious health hazard; and factors responsible for the problem are on the increase as we continue our expanding pattern of industrialization, urbanization, and the movement of people and goods by various means of transport.

It would be pleasant to be able to report that this problem can be adequately solved within a year or two, given better understanding of these trends. Unfortunately, this cannot be realistically done. The problems of air pollution are so diverse and complex that many basic technical answers, which only research can provide, have yet to be obtained and made available. For example, it is extremely important to clarify the relationships between certain respiratory diseases and air pollution. Emphysema, a disease strongly on the rise, especially in urban areas, chronic bronchitis, most asthma, and most lung cancer, cannot now be cured by treatment of the individual patient. Prevention of the development of such chronic conditions is, therefore, of extreme importance, for the most effective means of preventing illness and death from such diseases among millions of people may well be through more effective control and elimination of certain types of air pollution.

PROBLEMS OF STATES AND COMMUNITIES

As you know, many of the States and communities which are basically responsible for the control of air pollution under our system of Government, are encountering financial and administrative problems which hinder necessary additional progress. Many communities have not been able to take the basic initial step of surveying and appraising their air pollution problems so that appropriate measures can be adopted, as needed, to improve the situation. A dearth of qualified technical personnel often stands in the way of those States and communities which are desirous of intensifying control activity.

The budget request before you provides for a movement ahead in meeting some of these problems which the States and communities face. Some expansion in our research and training activities is requested to provide more of the technical and manpower backup which the States and communities need to help them carry out their responsibilities more adequately. We are placing heavier emphasis, in our research program, on pinpointing the relationships between certain serious pulmonary diseases, such as lung cancer and emphysema, and specific types of air pollutants. Our proposed expansion in training is primarily through grants-in-aid to medical schools, schools of public health, engineering schools, and related technical institutions, for developing and improving graduate-level training.

1963 BUDGET REQUESTS

We are requesting, therefore, for 1963, $10,069,000, an increase of $1,905,000 over the current year. The major portion of this increase—$1,205,000—is for grants, primarily to universities, in support of research and training. Important findings have resulted from support of air pollution research by such grants. The additional research grant funds proposed for fiscal year 1963—$868,000—will make possible a highly desirable broadening of the use of the air pollution research competence of the universities in this country. Similarly, it is essential for the attainment of national objectives in air pollution control that greater use be made of the abilities of universities in providing specialized training in air pollution research and control. The increase for training grants—$337,000—will provide the initial step in the development of the nationally needed expanded graduate training capacity in this field.

Smaller increases are requested for direct operations in the air pollution research field—$658,000—primarily related to airborne carcinogens, the relationships between emphysema and other chronic diseases and air pollutants, and similar fundamental studies.

Mr. Chairman, I shall be glad to answer any questions you and the other committee members may have about the air pollution program or the budget request.

SUMMARY OF BUDGET

Mr. Fogarty. The appropriation for 1962 is $8,800,000, and the request for 1963 is $10,069,000. There is a comparative transfer of $211,000 to GSA, so the real increase over the authorization for 1962 is $1,480,000 and 13 positions.

Mr. MacKenzie. Yes, sir.

RESERVE OF 1962 APPROPRIATIONS

Mr. Fogarty. There is a reserve for savings of $425,000 representing 22 positions.

Will you repeat again the quote from the President's message a year ago and the message this year about air pollution?

Mr. MacKenzie. The quotation from the message of a year ago, that is, his message on natural resources, said, and I quote:

> The Public Health Service * * * should provide for the control of air pollution * * * we need an effective Federal air pollution control program now.

Mr. **Fogarty.** When was that?

Mr. **MacKenzie.** That was the natural resources message to the Congress last year.

Mr. **Fogarty.** What month?

Mr. **MacKenzie.** I do not recall. I suspect it was March.

We can look up that in the record. The date was February 23, 1961.

Mr. **Fogarty.** Almost a year ago. Now what is the next quotation you gave?

Mr. **MacKenzie.** There was no other quotation from the President, sir.

Mr. **Fogarty.** I thought the state of the Union message was mentioned.

Mr. **MacKenzie.** In his state of the Union message last month, he did mention his continuing concern about air pollution.

Mr. **Fogarty.** Just tell me what he said.

Mr. **MacKenzie.** He said that air pollution is a continuing problem, particularly in our urban areas, and that we need new tools to fight it.

Mr. **Fogarty.** I wonder if he knew that the Secretary of Health, Education, and Welfare had cut this while he was talking about the importance of the program and the need to do more?

Mr. **MacKenzie.** I cannot give you a definite answer on that, Mr. Chairman.

Mr. **Fogarty.** Also I have been referring to this excerpt from the President's statement of October 26 given to the Cabinet officers. He said:

> I much prefer that obligational authority remain uncommitted when there is any doubt that expenditures would yield substantial returns to the national interests.

In view of his remarks last year and again in his state of the Union message, and this quotation from his October 26 statement, I don't see how anyone in the executive branch could cut this program back. I would think that the Department of Health, Education, and Welfare would have given these statements more consideration. But instead the Secretary, or someone, just went ahead and cut everything across the board regardless of what the President had indicated.

Do you still think you can use this $425,000 this year if it is released?

Mr. **MacKenzie.** From a technical standpoint there is no question about the ability to use it.

RESULT OF REDUCTIONS IN 1962 FUNDS

Mr. FOGARTY. All right; what did you have to cut out because of the loss of 22 positions and $425,000?

Mr. MACKENZIE. There were several items, Mr. Chairman, that were cut out of our program which had been planned for inclusion.

We had to eliminate from the current program a proposed contract with the University of California at Riverside, which was an extension of work going on in the Los Angeles area, an appraisal of the effects of pollutants from automotive vehicles on experimental animals. In this overall project we have several stations in the Los Angeles metropolitan area where animals are being exposed and the effects upon them are being observed. These locations are, in the main, adjacent to various sections of heavily traveled roadways in the Los Angeles area.

This is a part of the overall program which we have under investigation of the effects of emissions from automobiles on biological systems and, of course, of the effects on man.

Another contract which had to be canceled was one with the University of Southern California for a study, again in the Los Angeles area of the relationship between air pollution and the incidence of emphysema in various sections of that metropolitan area, and of the variations from time to time of air pollution and the symptoms of individuals who were affected with this respiratory disease.

Another contract relating also to the incidence of chronic respiratory disease in Alabama had to be sharply reduced.

We absorbed part of the funds placed in reserve in the research grants program—$89,000. This resulted in building up further the backlog of grants which have been recommended for approval for which we have no funds currently for support.

Lastly, we were——

Mr. FOGARTY. Will you put in the record a list of those applications that have been approved?

Mr. MACKENZIE. I will be glad to do that, sir.

(The requested information follows:)

Current backlog of unpaid research grants

Title and description of project	*Amount recommended for payment in fiscal year 1962*
"Physical Chemical Studies of Aerosols" This is a project to carry out physical chemical studies of coated aerosols.	$21,448
"Methods of Evaluation of Cost of Air Pollution" This is a project to establish methods to determine the economic impact of air pollution on this country.	7,066
"Long-Term Effects of Inhaling Polluted Air: 1st Phase" This is a project to relate air pollution exposures to resultant effects on the exposed population.	42,688
"Effect of Fluorides and/or Oxidants on Citrus" This is a study of fluoride toxicity in plants through definition of the location of fluoride in plant tissues.	57,086
"Hold Your Breath" This is a project to produce a series of 13 radio programs dealing with the most significant aspects of air pollution.	5,865
"Biochemical Effects of Air Pollutant Oxidants" This project is an investigation of the mechanism of action of air pollutant oxidants in plants.	19,597
"Elimination of Air Pollution From Mine Refuse Fires" This is a project to develop an economical method of processing coal refuse which will eliminate the atmospheric pollution problem resulting from burning coal refuse piles.	55,947
"Response of Mice to Various Synthetic Atmospheres" The project concerns the determination of the physiologic effects of nitrogen dioxide, nitric oxide, and hexene, alone and in combination, irradiated and nonirradiated, in mice.	49,605
"Precipitation Chemistry" This is a project to study individual rainstorms to determine the variation of chemical composition of rainfall by raindrop size and by time sequence.	29,873
"Gas Chromatography Applied to Atmospheric Kraft Odors" This is a project to investigate the gas chromatographic determination of Kraft mill effluents in the atmosphere.	12,604
"Incineration of Bulky Municipal Refuse" This project proposes the design, construction, and subsequent operation of 1 or more prototype incinerators suitable for burning bulky materials such as, demolition lumber, tree remains, old furniture, mattresses, tires, heavy cartons, and crates.	34,608
"Variables Affecting Chromaticity Data for Spot Tests" This project is for the study of the variables which limit the accuracy of visual estimation of spot density.	9,200
"Significance of Combustion Nuclei to Air Pollution" This is a project to study techniques for the measurement of combustion nuclei concentrations in the atmosphere and to study the physical processes involving combustion nuclei and the relationship of these processes to air pollution.	23,517
Total, backlog of unpaid grants	369,104

Mr. MacKenzie. Lastly, we were forced to postpone, because of the lack of funds, the undertaking of further studies to appraise the significance of emissions from trucks and buses in the total air pollution picture.

A good deal of such attention has been given already to emissions from passenger automobiles, but this is true to a much lesser extent with respect to trucks and buses, which also need attention.

AIR POLLUTION IN WASHINGTON, D.C.

Mr. FOGARTY. Well, I am sorry to hear that. We have a problem right here in the Nation's Capital. In view of the fact that all of the trolley cars have been taken off the lines in Washington, we can expect a rise in pollution here, with the addition of all these buses that are being put in use in the transportation system. I rode behind one last night. You have to have a pretty good constitution to ride behind one very long and not get sick.

Even before this, it has been bad here. In the Washington Star of January 9, 1962, there was an article, "District of Columbia Seen Leader in Smog Output";

> G. B. Welch, a sanitary engineer for the Public Health Service, has told the Dupont Circle Citizens Association that Washington is among the leading cities in the country in the production of smog.

WORK ON EXHAUST FUMES

Mr. MACKENZIE. I think it is essential that more attention be given to the problem of emission from trucks and buses.

We plan to continue this work later and to give it the attention that is necessary.

During the present year, we are unable, however, to do this to the extent that we had originally planned.

Mr. FOGARTY. All of these things that you are unable to do are important, are they not?

Mr. MACKENZIE. Yes, sir.

Mr. FOGARTY. If you were allowed to carry them on this year, would you not say they would yield substantial returns to the national interest?

Mr. MACKENZIE. Well, I may have a prejudiced outlook on this, but in my professional opinion, yes.

Mr. FOGARTY. Last year this committee increased the funds $500,000 over your request. We thought this work was important, and the Senate increased the appropriation another $300,000, and an increase of $700,000 was agreed to in conference.

Now, the $500,000 we increased the budget was primarily for research on auto exhaust.

Mr. MACKENZIE. Yes, sir.

Mr. FOGARTY. How much is being used for that, and just how is it being used?

Mr. MACKENZIE. Currently in the total program we are expending approximately $2 million on studies of emissions from automobiles. This is all in research.

We have contracts with a number of universities relating to exposures of animals in various ways to pollutants coming from vehicles.

Mr. FOGARTY. You had to curtail that work in California, did you not, because of the reserve?

Mr. MACKENZIE. Yes, sir.

We have a new installation operating in a laboratory in Cincinnati in which several species of animals are being exposed continuously, 24 hours a day, to concentrations of pollutants simulating that which occurs in the normal atmosphere in a large urban area, with the intent that this exposure will continue over a period of several years. The animals will be watched for development of pathology or of adverse symptoms of various kinds. They will be watched for interference with their normal activities. Also, the chemical changes which occur in automobile exhausts are being further investigated in our laboratory in Cincinnati.

One study that I think deserves perhaps special mention is that concerned with the exposure of the general population to lead in the atmosphere deriving from the use of tetraethyl lead in gasoline, generally and nationally.

Here, we have undertaken studies in three large cities in cooperation with industry, which is financing the study in one of these cities, to observe the variations in lead content in the air as it relates to vehicles operations, and to obtain biological samples from selected groups of the population, those living in the central part of the city or in the suburbs, and determining whether they smoke or not, what their personal habits are, and what possible occupational exposure may be involved.

LEAD INHALATION

We are obtaining significant information, in my opinion, on the exposure of the population generally to lead through breathing.

We are finding significant—well, perhaps I should not use the word "significant"—at least noticeable differences in the amount of lead that various groups in the population are absorbing, due to the airborne exposure.

Mr. Fogarty. What do you mean by that last statement?

Mr. MacKenzie. Well, let me give you an example. The person who lives in the country and does not smoke tobacco has generally the lowest level of lead that we find in the population groups that we are assaying. A person in the country who smokes has a considerably larger amount of lead, which can be analyzed in his blood. An urban area dweller who does not smoke has approximately the same level as the rural smoker. The urban dweller who also smokes has a still higher level; and, among these, certain groupings in the population have still higher levels—such as postmen, traffic policemen, automobile mechanics.

Mr. Fogarty. How about policemen that have to work in tunnels?

Mr. MacKenzie. We have had a study of this kind up in Boston in the tunnel there which goes from the downtown section of Boston over to East Boston. There, we took air samples in the tunnel at several locations, at the tunnel portals, and of the air in the ventilation system inlet and outlet. We also collected blood and urine samples from the policemen who are alternately on duty down in the tunnel and at the tunnel portals. The results of this study have not yet been fully analyzed.

Mr. Fogarty. I noticed you had some people in Providence.

Mr. MacKenzie. Yes, sir.

Mr. Fogarty. Providence, I think, is a fairly clean city as far as air pollution is concerned. The one noticeable thing was that, in the heavy traffic hours of the morning and evening, there was a perceptible rise.

Mr. MacKenzie. In general, I would agree with your statement. Providence appears to be a relatively clean city. There are noticeable quantities of both sulfur dioxide that can be measured in the winter period and in the fall, and of oxidant type pollution, presumably from automotive vehicles in the summer.

Mr. FOGARTY. What about this gasoline company that is doing a lot of advertising that they have no lead in their gasoline?

Mr. MACKENZIE. There is only one.

Mr. FOGARTY. Does that help the atmosphere?

Mr. MACKENZIE. Well, certainly it would help in decreasing emissions of lead from automobiles.

Now, our population is exposed to lead from multiple sources. There is lead in small quantities in some foods, perhaps from agricultural practices.

There is lead in tobacco. There certainly is lead exposure in urban air.

Mr. FOGARTY. Are there any filters that you know of yet that will filter out the lead that is in tobacco?

Mr. MACKENZIE. No, sir. I know of no such. The lead, I would expect, would be in very fine particles.

Mr. FOGARTY. Dr. Shannon had something the other day that he thought was pretty close to doing it, but I had some doubt in my mind as to whether it did or not.

MORE COMPLETE COMBUSTION OF HYDROCARBONS

Mr. MACKENZIE. The other aspect about which we are concerned with respect to lead is related to the effect of lead on devices which are currently under development to burn more completely the hydrocarbon emissions from automobiles.

In one of the two types of such devices, namely, that which promotes combustion by catalysis, the presence of lead in the exhaust has an adverse effect on its operation by poisoning the catalyst in a much shorter period than would otherwise occur.

Mr. FOGARTY. What about this turbine engine development by Chrysler that is on the road now?

Mr. MACKENZIE. We are quite interested in variations in the design of automobile engines as these may result in reduction of pollutant emissions. The turbine type engine is one which we think has promise from this standpoint. There are other types also that are currently under development that similarly have promise.

We have been in touch with the Chrysler Corp. in a preliminary way in order to explore the possibilities of obtaining one of these new cars for test purposes.

FUEL CELL DEVELOPMENTS

Mr. FOGARTY. What about the development of fuel cells?

Mr. MACKENZIE. This is also a promising development, perhaps much further in the future than the possibilities of engine design modification.

Mr. FOGARTY. But there are several people who are working in this area, are there not?

Mr. MACKENZIE. There are a large number of concerns that are working on fuel cells.

Mr. FOGARTY. Do you think, in the foreseeable future, they will be adaptable to transportation?

Mr. MacKenzie. The closest to this that I am familiar with, sir, is a development that may be adaptable to heavier type vehicles. Allis-Chalmers Co., about a year ago——

Mr. Fogarty. You mean like buses and trucks?

Mr. MacKenzie. Well, the demonstration that was put on by Allis-Chalmers was on a tractor.

Mr. Fogarty. I see.

Mr. MacKenzie. This also might be adaptable to heavier type vehicles.

But the weight of the fuel cell currently developed and possibly applicable to a vehicle, I think, is beyond that which would be suitable for a passenger car.

COMPARISON OF GASOLINE AND DIESEL ENGINES

Mr. Fogarty. What is the difference between regular gasoline and Diesel fuel burned in trucks?

Mr. MacKenzie. The requirements of the two types of engines are quite different.

Mr. Fogarty. What about the emissions?

Mr. MacKenzie. The requirement for fuel is quite different. The diesel engine can use a fuel of lower volatility than can the spark-ignition-type engine.

So far as emissions are concerned, the spark-iginition-type engine is inherently a less efficient type of engine than is the diesel. And on this account, a greater amount, a greater percentage of the fuel is not burned in the engine but is discharged out the exhaust.

The diesel engine, having a higher efficiency, discharges less unburned hydrocarbons than does the spark-ignition-type.

Mr. Fogarty. Why was the automobile industry not been able to develop a better engine that will more completely burn the fuel?

Mr. MacKenzie. There are developments that are currently receiving attention in the automobile industry. The turbine engine which you mentioned is one example. There are other types also.

Some new types of spark-ignition engines, having a higher air-fuel ratio than is now normally used, give promise of reduced air-pollutant emissions from automobiles.

EFFECT OF BLOWBY DEVICES

Mr. Fogarty. How effective are the blowby devices that are being manufactured now?

Mr. MacKenzie. I think we can conservatively estimate that the blowby device which returns the crankcase vent gases to the inlet of the ordinary automobile engine will decrease the hydrocarbon emissions—this is unburned gasoline primarily—by at least 30 percent. This can be done at relatively nominal expense.

Now, this does not cure the emission problem totally but is a significant step in that direction.

Mr. Fogarty. Is it feasible to put these on buses and trucks?

Mr. MacKenzie. This is fully applicable to the spark-ignition-type engine. The degree to which blowby emissions are of importance in diesel engines is not fully determined as yet. We have a research project which is currently underway on this.

Mr. FOGARTY. Are the buses run by diesel?

Mr. MACKENZIE. There are a significant number of buses that are powered by diesel engines.

Mr. FOGARTY. The ones that are used here?

Mr. MACKENZIE. Yes, a good many of them in municipal transit lines use it. They have both kinds.

Mr. FOGARTY. Would it be feasible to put them on those that are not using diesel engines?

Mr. MACKENZIE. Yes, sir. For all cars, trucks, and vehicles, generally, that are powered by the ordinary type spark ignition gasoline engine, the automobile industry has indicated that it will install the blowby devices on all such vehicles which are manufactured beginning in 1963.

Mr. FOGARTY. They want to charge the consumer extra, though. I think they ought to put it on at no cost. I think that would be a good ad for them.

Mr. MACKENZIE. I am not familiar with that.

EXHAUST EMISSION RESEARCH

Mr. FOGARTY. What about the emissions from the exhaust? What work is going on in that area?

Mr. MACKENZIE. There is much more work being done on this problem now than was the case a year or two ago, and I am very happy to be able to say this.

Mr. FOGARTY. Well, tell us all about it, then.

Mr. MACKENZIE. Yes, sir. We have been conducting over the past several years within the Public Health Service, or by transfer of funds to the Bureau of Mines, fundamental studies on principles that might be applicable to afterburners, either of the catalytic type or of the direct-flame type.

Within the last year or 18 months, the developments in California——

Mr. FOGARTY. Excuse me; would you briefly explain the difference between a catalytic type and flame burner?

Mr. MACKENZIE. Yes, sir. In a catalytic type afterburner, the exhaust gases with supplementary air are passed through a chamber, essentially a muffler, in which a chemical material is packed which promotes combustion. This will allow the materials in the exhaust to be burned at a lower temperature and at a lower concentration than can be done normally.

The direct-flame afterburner, on the other hand, is one in which there is no catalysis involved, but in which the gases are burned in a flame.

Mr. FOGARTY. All right. Go ahead.

SIGNIFICANCES OF THE CALIFORNIA AIR POLLUTION LAW

Mr. MACKENZIE. Now the significant advance in the last year or two on the development of these has been sparked, I would say, by what has gone on in California, where a new State law was passed which will require the installation of such devices after two or more of them have been demonstrated to be practicable and to meet the standards promulgated by the State.

Now there are known somewhere between 75 and 100 private firms working on the development of afterburners of these two general types. Between 25 and 30 of these have been submitted to the State of California for appraisal, review, and possible certification. No such devices, however, have yet been certified, nor have they completed satisfactorily the full testing cycle which has been specified by the State.

Mr. Fogarty. To the best of your knowledge, how much will one of these cut down the exhaust emissions?

Mr. MacKenzie. The requirement generally, under the California standards, is for about an 80-percent reduction. Most of these will perform at a higher level of efficiency than that when they are new, or at least several of them will that we know about.

There is some deterioration of performance, particularly among the catalytic type afterburners, as they age, partly because of attrition of the catalyst and partly because of poisoning due to tetraethyl lead in the gasoline.

The requirement in California is for maintenance of at least an 80 percent efficiency on removal of hydrocarbons over 12,000 miles of car operation. In other words, at the end of the 12,000-mile period, the device must still exhibit an 80-percent efficiency.

Mr. Fogarty. That is pretty good though, it is not?

Mr. MacKenzie. Yes, sir.

Mr. Fogarty. So that is a big step forward in this problem.

Mr. MacKenzie. I think there is a big step coming along. We have not quite reached it yet, but the prospect looks much better than it did.

MODIFIED GASOLINE ENGINE

Mr. Fogarty. What is the next step?

Mr. MacKenzie. We would like to encourage the development of modified engine designs that would inherently decrease the emissions from automobiles. Any kind of an afterburner, whether it be direct-flame or catalytic type, will require periodic inspection to insure its continued efficient working. If the engine itself could be improved to cut down on the emissions, we would think this to be a fundamental step forward.

Mr. Fogarty. What is the automobile industry doing about this?

Mr. MacKenzie. Well, there are several types of engines which are being studied within the industry of which we have knowledge, which should have promise of progress in this direction. One of them you have mentioned—the turbine-type engine.

As another example, there are so-called stratified charge type spark ignition engines which are under study.

EFFECT OF BLOWBY DEVICE ON GASOLINE CONSUMPTION

Mr. Fogarty. Do these blowby devices have any effect on the consumption of oil and gas, do you know?

Mr. MacKenzie. Only to a minor extent, sir. Theoretically, the return of the blowby gases to the engine inlet should increase the mileage of the car by a nominal amount. But it is so small that it can hardly be measured and the effect is less than from the variation that normally occurs in automobile operation due to variations in engine setting and adjustment.

Mr. FOGARTY. Well, suppose a blowby device costs $30 or $40 to buy and install, do you think the cost would be saved in less consumption of gas during the average life of an automobile?

Mr. MACKENZIE. Well, the difference in mileage might, perhaps, amount to 1 or 1½ percent on a theoretical basis. Nobody has actually measured this, sir. If this saving of 1 to 1½ percent of fuel would equal the cost of the device, then the question would be answered, "Yes." It would depend on how much the individual used his car. You would have to drive it quite a distance, I think, to make that amount of saving.

Mr. FOGARTY. Suppose you went by the standards of the Government, either 60,000 miles or 6 years.

Mr. MACKENZIE. This would be about 5,000 gallons. My quick computation would indicate that he would not recover the full cost that you mentioned.

Mr. FOGARTY. What did you figure, 1 or 1½ percent?

Mr. MACKENZIE. I figured 1 percent, sir.

Mr. FOGARTY. What about one and a half?

Mr. MACKENZIE. If you figured 1½ percent at about 12 miles per gallon, this might amount to a saving of approximately 75 gallons. At 30 cents per gallon, that would be about $22.

Mr. FOGARTY. Well, it would pay for about half of it, then.

Mr. MACKENZIE. Yes, sir.

COST OF BLOWBY DEVICES

Mr. FOGARTY. I would think that would be a good ad for some automobile company to put these on at no additional cost.

Mr. MACKENZIE. I might add that the cost of the blowby devices that are being installed currently on new automobiles, at the factory, is considerably less than the figure that you have mentioned.

Mr. FOGARTY. What are they, in fact?

Mr. MACKENZIE. The list prices as optional equipment on the 1962 cars vary, in general, from about $3.50 to about $5.50 each.

Mr. FOGARTY. If that is so, you would make money by buying it, would you not?

Mr. MACKENZIE. Yes, sir.

POLLUTANTS AND RESPIRATORY DISEASE RESEARCH

Mr. FOGARTY. What other problems in this area do you see; or what are some of the problems that you see that you would like to work on if you got sufficient funds?

Mr. MACKENZIE. Well, fundamental to this whole pollution program is further research to elucidate the relationships between pollutants and respiratory disease, particularly chronic respiratory disease, although not exclusively so.

As one example of the type of work which needs followup, I would like to cite the results of a study that was made during the past year at the University of Southern California, supported by Public Health Service grant funds, on production of human types of lung cancer in experimental animals.

The exposure in this case was twofold. The animals were infected with influenza, then allowed to recover, and subsequently exposed to ozonized gasoline as a simulated type of urban pollution deriving from automobiles. This combination of exposure resulted in the development of significant numbers of human-type lung cancers in the animals.

Similarly, we are very much concerned about the relationship between air pollutants and other respiratory diseases. It has been shown in the laboratory that the exposure of animals to irritant-type pollutants such as sulfur dioxide, ozone, or oxides of nitrogen, will decrease the resistance of the animal to respiratory infection. This presumably occurs because of the inhibition of ciliary action, the action of the cilia in the respiratory passages in sweeping out entrained particles that may lodge there. Some of the epidemiological studies related to humans confirm the laboratory findings.

This graph, as an example, comes from a study of employees of a large electronics firm having factories in several different cities. It shows a high correlation between air pollutant concentrations in these several cities and employee absenteeism because of respiratory infections. In this case these were absences of 7 days or more from the job because of respiratory infection.

We also need to know a good deal more about the specific carcinogens that are found in urban atmospheres and their importance in the production of human lung cancer. The results of studies to date, I would say, would indicate a high degree of probability that an appreciable percentage of the total incidence of lung cancer may be due to air pollution, similar in magnitude perhaps to that attributed to smoking.

In one of the latest issues of the British Medical Journal there is an interesting article on this point which leads essentially to the same type of conclusion as ours in this field; namely, that among the people in the South African survey, smoking and air pollution seemed to be of similar significance in the production of lung cancer in that area.

EFFECT OF AIR POLLUTION ON AGRICULTURE

We need to know a good deal more about the spread of pollution from urban areas. This is assuming greater importance, because we are finding effects of air pollutants at increasing distances from the large cities. For example, agricultural damage, identifiable as caused by air pollution, is showing up at distances of 100 to 150 miles away from large urban centers, from which large quantities of pollution may originate.

NEW JERSEY STUDY

One example of this, which I think illustrates the problem in general, is included in a recent report of the New Jersey Agricultural Experimentation Station at Rutgers University.

With your permission, I would just read a paragraph of the conclusion.

Mr. Fogarty. All right. Put the whole thing in, if you want.

Mr. MacKenzie. I will read the paragraph of the conclusion.

Mr. Fogarty. Read what you want and we shall put the rest in the record.

Mr. **MacKenzie.** The conclusion is as follows, and I am quoting now:

While injury to vegetation from acid gases appears to be decreasing in New Jersey and 2,4-D herbicides no longer pose a problem, injury from ozone and other oxidants is increasing in frequency. Ozone injury has now reached the point of seriously threatening the continued commercial production of spinach and possibly endive, chicory, and some varieties of petunias in many areas. Although photochemically produced compounds other than ozone which are responsible for oxidant injury do not at present represent as great a threat to as many crops in New Jersey as ozone, damage has been observed on celery, spinach, and a few greenhouse crops from these compounds.

With the sources of contamination, cars, homes, and industrial fires, refineries, etc. being so numerous both in and bordering New Jersey, it is not surprising that test tobacco plants, placed in 14 different locations in New Jersey during the growing season just past showed injury from ozone in every location. It appears, therefore, that this is a problem, which, while being most serious near such cities as Philadelphia and New York, can be expected to affect sensitive plants in all areas of the State.

(Complete text of the above article follows:)

Air Pollution as It Affects Agriculture in New Jersey

(By Robert H. Daines, Ida A. Leone and Eileen Brennan, Department of Plant Pathology)

Although air pollution damage to vegetation dates back about 100 years, the problem did not become acute in New Jersey until the late years of World War II. Prior to this time air pollution damage in the State was believed to be limited to that produced by sulfur dioxide, illuminating gas, and ethylene. However, industrial expansion and the development of new processes in connection with the war effort introduced hitherto unknown pollutants. In 1944 an unusual pattern of foliage injury was noticed on many cultivated crops, ornamentals, and indigenous vegetation in two areas along the Delaware River. Field surveys in both areas revealed that certain varieties of plants showed similar damage. This injury was often followed by partial or complete defoliation of many deciduous and coniferous plants. Monocots such as gladiolus and tulip showed considerable terminal injury; corn showed a characteristic mottling. Peach growers in the affected areas reported that along with foliage injury and defoliation, early fruit drop caused considerable loss in the peach crop. Although the injury seemed to be developing constantly, it was most pronounced following wet periods of low wind velocity. The youngest expanded leaves were generally more sensitive that older leaves. Since this injury was not due to any known disease, nor to temperature or fertilizer effects, the evidence strongly suggested an air pollutant as the cause. Its similarity to damage described in the literature on corn and peach foliage following the use of cryolite, a fluorine-bearing insecticide, implicated fluorine as the responsible pollutant. As feelings were running high with law suits threatening, the senior author was appointed by the director of the experiment station to investigate the problem and with the aid of the farmers, $13,000 was appropriated by the State legislature for the study. Thus was begun a series of experiments in which plants were fumigated with hydrogen fluoride in especially equipped chambers.

Since the start of the project, the scope of the investigation has been expanded to include chlorine and sulfur, illuminating gas, 2,4-D and other growth regulators, and still more recently ozone and other oxidants.

ACID GASES

Sulfur dioxide, chlorine, and hydrogen fluoride may be considered together under the term acid gases. Acute injury to vegetation by acid gases usually presents a typical pattern of marginal or interveinal collapsed areas in the leaves. However, sulfur dioxide tends to produce more intercostal injury than the fluoride or chlorine. Subsequently, these areas dry to a buff color, though in some plants which have considerable anthocyanin the final color may be brown or red-brown as in clover, apple, or pear leaves. Though areas adjacent to injured portions of a leaf may absorb an appreciable amount of gas, unless the injury threshold is surpassed, visible symptoms are not exhibited. Necrosis, unless extensive, seldom extends across the veins.

Occasionally, as a result of sulfur dioxide fumigations, injured areas on leaves occur as necrotic streaks especially on monocotyledonous plants. Bobrov, (1) in investigations of the effect of hydrocarbons on oat leaves, observed that the presence of abundant stomata and the loose arrangement of cells favored the entry and rapid diffusion of the toxic gas into the inner leaf. The vascular ridge was seldom injured. Here the conducting elements are surrounded by tightly compacted brick-shaped cells which are frequently lignified. In addition, this area has few or no stomata. Since the highly ventilated area in monocots is bordered by parallel veins, the injured areas frequently run parallel with the leaf.

Although the three gases may produce somewhat similar symptoms on a particular plant, species vary in their susceptibility to each phytotoxic air pollutant. Some plants are susceptible, whereas others are much more tolerant to a given pollutant. For example, corn and peach are quite susceptible to hydrogen fluoride, but they are both resistant to sulfur dioxide. Ragweed on the other hand is susceptile to sulfur dioxide and very tolerant to hydrogen fluoride. Even among plants of the same species, variation in susceptibility may be rather impressive due to differences in heredity, nutritional status, water and light relationship and the general growth conditions of the plant.

Sulfur dioxide.—Katz (10) has found that vegetation may be affected by sulfur dioxide when ground levels exceed 0.3–0.5 parts per million. When the stomata are open sulfur dioxide is absorbed into the leaf and injury may occur. Environmental conditions conducive to the opening of the stoma are favorable temperatures, adequate water supply, high relative humidity, and high light intensity. Plants which close their stomata at night are resistant to sulfur dioxide during that period. Katz also found that conifers are more susceptible to sulfur dioxide during the spring and early summer months than during the rest of the year. When sulfur dioxide is absorbed by the leaf cells, it units with water and forms the phytotoxic sulfite which may be slowly oxidized in the cell to the innocuous sulfate form (10), providing the plant with a mechanism which protects it against low concentrations of the gas. The toxicity of sulfur dioxide is therefore a function of the rate at which it is absorbed. A given dose absorbed rapidly will produce a higher concentration of the toxic sulfite in the cells than the same amount, or even a greater amount of gas absorbed at a slower rate.

Studies on the effect of sulfur dioxide on photosynthesis of alfalfa by Thomas and Hill, (22) showed that high level fumigations of too short a duration to kill tissue reduced the rate of photosynthesis during the exposure, but immediately after the gas was removed the rate of photosynthesis returned to normal. Where tissue killing occurred there resulted a permanent reduction in the rate of photosynthesis proportional to the amount of tissues destroyed. Low level fumigations for long periods which did not produce chlorosis had no effect on photosynthesis. When fumigation was continued for a sufficiently long period to cause chlorosis, photosynthesis was adversely affected. These studies demonstrate that hidden injury is not produced by sulfur dioxide; that injury is not systemic, but is confined to the areas that are visibly affected.

Hydrogen fluoride.—Research has indicated that hydrogen fluoride is an extremely phytotoxic gas; certain species of gladiolus plants for example have been injured by concentrations as low as 0.1 and 0.2 parts per billion. In New Jersey experiments gladiolus was injured by a 21-day fumigation of 1 part per billion and moist peach foliage was burned by a 3-hour fumigation of 50 parts per billion. A 3-hour fumigation of 40 parts per billion of hydrogen fluoride produced a mottled chlorosis on corn leaves, consisting of small green and faded green areas interspersed irregularly over the leaf which persisted through the life of the leaf. Apparently fluoride at this low level damaged the chlorophyll of the corn leaf before killing the cells.

Although fluoride injury symptoms may resemble those produced by sulfur dioxide, methods of absorption and perhaps the mode of action seem to be quite different for the two gases. Injury occurring from fluoride is not as dependent upon open stomata at the time of the fumigation as injury from sulfur dioxide. In fact, no significant differences have been observed in New Jersey between night and daytime fumigation. It therefore appears that absorption may occur through the cuticle. Unlike sulfur dioxide, hydrogen fluoride injures wet more severely than dry leaves. Wilting does not seem to protect against this gas (2).

As is the case with sulfur dioxide, plants vary in their capacity to absorb fluoride and in their tolerance to this gas. Usually the plants that accumulate fluoride most readily are the most tolerant to it. For example, where corn and tomatoes were fumigated together, pronounced injury occurred on the corn foliage while no injury developed on the tomato leaves. A composite analysis of foliage showed that corn absorbed 70–76 parts per million of fluoride by weight of dry leaf tissue, whereas the tomato leaf accumulated nearly 200 parts per million. (12). Plants are most susceptible to injury during seasons of the year and under cultural and nutritional treatments providing the most rapid growth.

Whereas the toxic sulfite ion is disposed of in the plant by its conversion to the nontoxic sulfate or by death of tissue or loss of leaves, the toxic fluoride ion may be lost to the plant through volatilization and washing (rain), in addition to tissue killing, defoliation, and possibly translocation and conversion to less toxic compounds.

Studies in New Jersey have shown that plants may absorb fluoride from the soil, especially under acid conditions. This fluoride tends to accumulate in the roots but some is translocated into the leaves. Experiments in which fluorine compounds were added to the soil resulted in reduced growth of tomato plants, and mottling of corn foliage (19).

Studies on the effect of fluoride on plants by Hill et al. (9) and Thomas (23) have shown that sublethal concentrations could be tolerated for long periods of time without a reduction in the rate of photosynthesis. High gas concentrations caused a reduction in the rate of photosynthesis in excess of that expected from the apparent leaf injury. After the fluoride gas was removed recovery was rapid at first, then slowed down requiring 2–3 weeks for complete recovery.

Chlorine.—Chlorine damage to vegetation has been observed in New Jersey only on two occasions and is not considered to be of much importance in the State.

2,4-D HERBICIDES

Since the herbicidal action of 2,4-D and 2,4,5 trichlorophenoxyacetic acid was reported in 1944 by Hammer and Tukey, selective weed killers have been widely used for the control of undesirable plants. Although these materials do an excellent job in the destruction of many plants, damage has occasionally resulted from the drift of sprays, dusts, or fumes from areas under treatment or industries manufacturing these compounds. The observed cases in New Jersey of plant damage resulting from air-borne-herbicides have been restricted in each instance to localized areas extending to a maximum of 1 or 2 miles from the industrial plants engaged in the production of herbicides.

The symptom commonly observed from 2,4-D like herbicides is distortion of the leaves and petioles. Dwarfing, curling, twisting, and uneven serration of the leaves are often symptoms of injury. In severe cases the leaves are filiform in shape. Injured leaves exhibit a yellow-green mottling or stippling and prominent clearing of the veins.

Plant susceptibility to sublethal exposures of 2,4-D is markedly influenced by the growth condition of the plant and also by environmental factors. Since the symptoms are characteristically growth responses, the plant must be developing new leaves to show the injury. Plants in shaded areas respond more slowly than those exposed to the direct rays of the sun. Because of these and other factors, variations in susceptibility should be expected. Of the plants observed in the field, grape was the most sensitive to 2,4-D injury. On several occasions it was injured when no other plants near it revealed any evidence of the chemical. Severe distortion and vein clearing have also been observed on box elder, sumac, tree of heaven, sweet gum, red oak, pin oak, black oak, Norway maple, mulberry, linden, hickory, London plane, birch, apple, yellow wood, sorrel, dogwood, wisteria, elderberry, choke cherry, forsythia, tomato, zinnia, and lamb's quarter. Some of the less severely affected plants are cherry, peach, Colorado blue spruce, hemlock, cedar, rhododendron, yew, privet, wild aster, corn, potato, gladiolus, giant ragweed, and some varieties of rose.

In fumigations conducted by Daines (3) it was found that ethyl, n-butyl, n-propyl, and iso-propyl esters produced pronounced injury to tomato plants. N-hexyl, sec-amyl, methyl cellosolve, butyl-cellosolve and methyl carbitol produced only slight response in the tomato, whereas oleyl, ethyl cellosolve, n-octyl, butyl carbitol, n-decyl, n-dodecyl, and n-octyl esters produced even less plant response. Thus, it was apparent that the likelihood of injury from vapors decreased as the size of the molecule and the molecular weight increased. In recent years crop damage from herbicide air pollution has become very much reduced with the introduction of less volatile heavy esters, amines, and emulsifiable formulations of 2,4-D, 2,4,5-T and M.C.P.

OXIDANTS

Ozone.—During the late fall of 1958, a Bordentown farmer who experienced damage to his spinach crop requested that various members of the Experiment Station staff inspect his fields to diagnose the cause of the injury and recommend corrective measures. At the time of the first inspection, chlorosis and leaf spotting were conspicuous. These symptoms were variously diagnosed as being due to nutritional deficiencies, hardpan, root rot, and air pollution. The etiology of only one type of spot, a disease called anthracnose, was really known. An inspection of spinach fields throughout the State revealed that these injury symptoms were widespread. Spinach and certain other plants were observed frequently during the 1959 growing season. During the spring and fall various spinach production problems were encountered including injury from two types of air pollution. The most prevalent type of foliage injury first appeared as dark oily areas on the upper leaf surface. On close inspection these dark areas appeared to be water soaked and on further development imparted a glazed appearance to the leaf surface. Milky white necrotic spots varying in number from few to several on a single leaf could be seen in the glazed area. Some of these spots involved only the palisade and a few mesophyll cells, while others extended through to the under leaf surface. In the field this glazing of the upper leaf surface was occasionally exhibited for only a few days; however at times it persisted for a much longer period. The least severe injury consisted of a loss of chlorophyll in the upper palisade cells of the leaf causing a grey-green to yellow mottling of the upper leaf surface. The injury regularly appeared on the oldest leaves of a plant. The new leaves produced by rapidly growing plants soon obscured by symptoms observed earlier. The conclusion reached after extensive survey and fumigation experiments was that the observed symptoms were identical with those resulting from ozone fumigations. To date ozone injury has been observed in New Jersey not only on spinach, but also on alfalfa, rye, barley, orchard grass, tobacco, petunia, radish, red clover, bean, parsley, grape and perhaps chicory, endive, broccoli, carnation, and pine. On alfalfa foliage destruction of the chlorophyll in the palisade cells occurred in certain areas tending to be basal. In clover and radish these areas of chlorophyll destruction were irregular in shape and location. They regularly appeared first on the upper surface but in the case of the radish lower surface bleaching often occurred. Chlorophyll destruction in the cereals appeared as longitudinal streaks between the veins, tending to be located at the bend of the leaf. In the cereals the injury manifested itself as readily on the lower as the upper surface. This variation in symptom may result from the fact that these leaves do not possess palisade cells. When injury is severe enough necrosis also occurs.

The fact that ozone at certain concentrations in the atmosphere could be injurious to plants was first recognized by those experimenting with mixtures of ozone and unburned hydrocarbons (7). However, it was believed that ozone as such was of no economic concern (15, 17) until Richards, Middleton and Hewitt (20) reported in 1958 that small brown to black lesions observed in the field on the upper surface of grape leaves could be reproduced by a 3-hour fumigation with 0.5 part per million ozone and Heggestad and Middleton (8) reported that a flecking of tobacco leaves in the eastern part of the country was caused by ozone. This present report is the first to emphasize that ozone is our most important single phytotoxic air pollutant, affecting as it does many plant species within our State. Fumigations conducted in Utah by Hill and associates and Daines have reproduced the upper surface silvering, yellowing, and necrosis observed on spinach, and the injury pattern occurring on alfalfa, oats, barley, and petunias in New Jersey. Experiments by Todd and others (5, 26, 27) indicate the ozone reduces photosynthesis and increases respiration. Whether ozone per se affects growth has not yet been well demonstrated.

Oxidants other than ozone.—Injury to vegetation produced by acid gases or herbicides is usually restricted to a small area with the source of the emission located within the area of plant damage. Since 1944 a new type of injury to vegetation has been recognized in Los Angeles County in California and in many other metropolitan areas around the world. It was at first termed "smog" injury, and more recently "oxidant" injury. The geographical area involved is usually very large, encompassing for example, the entire Los Angeles County extending as far south as the Mexican border (13). It has been estimated by Middleton and others that the visible damage to 11 crops has amounted to over $3 million annually in Los Angeles County alone (15).

This oxidant injury which is occasionally observed on certain plants in New Jersey is often named by its most conspicuous symptom, "silver leaf." Although the symptom complex varies among plant species, a silvering of the under surface of the youngest fully expanded leaves is the most characteristic injury expression. This silvering results from the destruction of cells just under the lower epidermis and their consequent separation from the remainder of the leaf by an air layer. The silver appearance of the under leaf surface is usually accompanied by necrotic spots, some of which may extend through to the upper surface. The lower surface injury from oxidants begins in the well aerated spongy parenchyma mesophyll cells, whereas the upper surface injury from ozone first appears in the more compact palisade layers of mesophyll which are so rich in chlorophyll. Oxidant injury has been observed in New Jersey on spinach, celery, red beets, swiss chard, cultivated dandelions, Romaine lettuce, sour grass, petunia, snapdragon, and chickweed.

Experiments have demonstrated that plant species vary considerably in their susceptibility to lower leaf-surface oxidant injury (11). There is some evidence to indicate that succulent plants receiving ample supplies of water and nitrogen are more easily injured than those receiving deficient supplies of these nutrients. It is also reported that plants grown at 75° F. are more susceptible to injury than those at 55°.

In addition to the visible injury produced by hydrocarbons and ozone mixtures. Todd and others (5, 25, 26) have shown a reduction in photosynthesis and an increase in the respiration rate; i.e., the rate at which stored foods are utilized in plants. It is also reported that plants exposed to these pollutants produce less growth and drop their leaves earlier than unexposed plants (16, 18, 24, 27).

The magnitude of the problem in the Los Angeles Basin, where it has been intensively studied and publicized, is undoubtedly associated with the meteorological conditions of the area. The semipermanent Pacific high pressure cell together with the mountain range which nearly surrounds the basin are partly responsible for the occurrence in that area of rather frequent and prolonged periods of low air movement at the ground level. In addition, this atmospheric stagnation is enhanced by rapid nocturnal radiational cooling resulting from clear skies and low humidity. The air at the ground level tends to remain cooler during the day than the air above it since the temperature of the air moving into the area is influenced by the cold waters of the Pacific Ocean. This helps maintain an inversion layer; i.e., a layer of warm air above cooler air which prevents the upward dispersion of atmospheric pollutants. On the west coast such periods of inversion and low air movement may last for a week or two at a time. Although a semipermanent Bermuda high exists along the Atlantic coast the topography and meteorological conditions here are such that periods of low air movement at ground level accompanied by inversions are relatively short-lived, existing for only a few hours to a day or two at a time. A report by Wanta of the U. S. Weather Bureau and Heggestad of the USDA (28) indicates that ozone occasionally reaches concentrations 0.3–0.5 parts per million between 10 a.m. and 5 p.m. in the air at Beltsville, Md., that are well within the range of vegetation damage. During this study on the 5 days of highest ozone concentration a high pressure ridge occurred to the southeast not far from Washington, D.C., with a trough of low pressure to the northwest. On all days the wind for the 2 hours preceding the ozone high came from the direction of Washington, with the velocity varying from 3 to 9 miles per hour, and the convection layer was bounded by an inversion layer or by a layer of considerable stability. Such conditions accompanied by high solar radiation could be expected to result in ozone accumulations.

Source of oxidants.—Identification of the air pollutants present in smog that are responsible for plant damage has presented a most difficult problem. The early work of Haagen-Smit and associates (6) demonstrated that gasoline as such was not phytotoxic even in concentrations of several hundred parts per million of air nor was nitrogen oxide in reasonable concentrations. However, when vapors of gasoline were mixed with ozone or NO_2 in the presence of sunlight, a phytotoxic oxidant was formed which caused injury to the lower leaf surface. Studies of these mixtures revealed that the fraction boiling between 39° to 69° C., was the most damaging. It has since been learned that all gasoline vapors, whether olefins or not, can in the presence of ozone or NO_2 and sunlight produce plant damage if given sufficient exposure time. In later work (14) ozone (O_3) concentrations as low as 0.1 parts per million were demonstrated to be phytotoxic producing chlorosis, silvering, and spotting of upper leaf surfaces.

The sources of the hydrocarbon vapors NO_2, and ozone responsible for the plant damage is of particular interest. Hydrocarbons that are not completely burned reach the free air from all types of combustion. An article in the Oil and Gas Journal of February 16, 1959, states that of the 1,411 tons of hydrocarbons lost daily to the air in Los Angeles County, automobiles contribute 1,000 tons. Refineries add another 103 tons, and without controls they would add 800 tons daily. Crude oil-producing activities add 60 more tons daily while marketing adds 43 tons. Other industrial and commercial sources contribute another 205 tons. NO_2 is produced from oxygen and nitrogen in the air by any hot combustion source such as open fires, home furnaces, and in automobile combustion chambers. Motor cars contribute 430 tons daily, refineries 56 tons and industrial and commercial sources 215 tons.

Haagen-Smit (6, 7) and Middleton (16) reported that ozone is produced in the air by the action on NO_2 of the ultraviolet light in sunshine. This reversible reaction might be illustrated as follows: $NO_2+O_2+\text{Sunlight}=NO+O_3$. The ozone ($O_3$) formed may react with the nitric oxide (NO) to produce nitrogen oxide (NO_2). If a hydrocarbon radical is present to remove the nitric oxide from the air, a buildup of ozone occurs. According to Scott, Stephens, Hanst and Doerr (21) peroxyacyl nitrite is formed in the atmosphere from a reaction involving an oxidized hydrocarbon radical and nitric oxide while Darley and associates (4) suggest the formation of a zwitter ion from reactions involving ozone and certain hydrocarbons. Although the exact compounds responsible for plant damage have not been definitely ascertained, these components are thought to be likely offenders. Such reaction products are responsible for the undersurface oxidant injury to the youngest fully expanded leaves, while ozone per se is responsible for the upper-surface injury to the older leaves. Peroxyacyl nitrite on decomposing produces nitrogen oxide which in turn is acted upon by the rays of the sun to produce additional ozone and nitric oxide. In this way the ozone concentration builds up in urban and industrial areas under appropriate environmental conditions. Middleton reports that during smoggy periods in Los Angeles, the ozone concentration becomes 10 to 20 times as great as that naturally occurring in clean air (0.03 p.p.m.). This puts it well within the plant damaging range.

DISCUSSION

While injury to vegetation from acid gases appears to be decreasing in New Jersey and 2,4-D herbicides no longer pose a problem, injury from ozone and other oxidants is increasing in frequency by virtue of greater population concentration. Ozone injury has now reached the point of seriously threatening the continued commercial production of spinach and possibly endive, chicory, and some varieties of petunias in many areas. Although photochemically produced compounds other than ozone which are responsible for oxidant injury do not at present represent as great a threat to as many crops in New Jersey as ozone, damage has been observed on celery, spinach and a few greenhouse crops from these compounds. As our population grows further increase in sources of emission of the constituents responsible for the production of ozone and other oxidants can be expected in urban areas, especially during this age of automobile travel, rendering the air pollution problem especially serious near large cities. Since the solution of the problem by the use of controls seems most discouraging, emphasis must be placed on breeding new plant varieties that will tolerate the air in our increasingly urbanized State. In addition the use of protective chemical sprays for sensitive plants should be investigated.

In a letter dated November 20, 1959, from Ellis Darley, chairman of the air pollution research group at Riverside, Calif., the following statement is made: "In general, from irradiated mixtures of auto exhausts, ozone formation can be expected in less than an hour after the required ingredients viz., oxides of nitrogen and hydrocarbons reach bright sunlight. Also from our experiments, oxidants (mixture that is toxic to under leaf surface) from the same type of reaction seem to be produced in adequate amounts after a 30-minute irradiation. Since the principal sources of the raw materials are themselves rather diffuse, I would expect that the damage resulting from the final products would also be widely distributed rather than confined to a local area."

With the sources of contamination, cars, home, and industrial fires, refineries, etc. being so numerous both in and bordering New Jersey, it is not surprising that test tobacco plants, placed in 14 different locations in New Jersey during the growing season just past, showed injury from ozone in every location. It appears therefore that this is a problem, which, while being most serious near such cities as Philadelphia and New York, can be expected to affect sensitive plants in all areas of the State.

GEOLOGICAL SURVEY STUDY

Mr. FOGARTY. I have a newspaper clipping from the Washington Post of January 4, 1962. The headline reads:

"Autos Poison Roadside Vegetation," which is similar to what you have just said:

> A U.S. Geological Survey scientist has found "alarming" amounts of lead from automobile exhaust fumes in vegetables and grasses grown near the Nation's streets and highways.
>
> The findings raises serious questions about the toxic effects of this poison on man and his environment—questions that cannot be answered now because of an almost total lack of knowledge of the environmental hazards of lead.
>
> * * *. Two years ago the petroleum industry asked the Surgeon General to comment on the public health aspects of increasing the tetraethyl lead content in motor fuel.
>
> A special Advisory Committee was convened, and it reported that a "conclusive answer is impossible at the present time because of a lack of medical data." Nonetheless the advisory group did conclude that "available data did not indicate that such change would significantly increase the hazard to public health from air pollution."
>
> For its part, the Public Health Service noted that it has "no legal authority to control the concentration of lead in gasoline."

LEAD STUDIES

> The Advisory Committee also recommended that studies be undertaken to determine how much lead Americans are getting. These studies are now underway.
>
> Just what this means to the health of Americans is unknown. For one thing, because there is no single agency responsible for coordinated studies on pollutants * * *.

It says also:

> It is known, for example that lead poison can cause irreparable brain and nervous system damage. Lead has also been linked by Canadian and British scientists to multiple sclerosis and cancer.

Well, apparently, some study was ordered. Do you know anything about this study?

Mr. MACKENZIE. Yes, sir. We have this study underway. This relates to the study in the several cities which I have mentioned and the studies of the special population groups, including those in circumstances which might involve a special exposure.

Mr. FOGARTY. Were these studies affected by this $425,000 put in reserve?

Mr. MACKENZIE. No; we have not cut back on any of these studies. We have not cut back on the lead studies.

Mr. FOGARTY. What is your program for these studies? When do you expect to get a report of conclusions or recommendation?

Mr. MACKENZIE. We would hope that we would have data that could be fully analyzed and reported on by perhaps the end of this calendar year. We are scheduled to make a report to Congress in June of this year on the significance of emissions from automobiles on human health. We will make such a report in June and will include such data as are available on the lead problem.

Mr. FOGARTY. On page 9, you outline activities being undertaken under this $700,000 increase, that we gave you last year, totaling $403,690. What happened to the other $300,000?

Is that part of what was put in reserve?

Mr. MACKENZIE. That is part of what was put in reserve.

SUPPORT FROM CIVIC ASSOCIATIONS

Mr. FOGARTY. What kind of support do you get from the American Municipal Association, the U.S. Conference of Mayors, and groups like that?

Mr. MACKENZIE. These two groups and the National Association of County Officials, which are, perhaps, the three most representative groups as related to local government activities, have all adopted policies or platforms related to air pollution, calling, in general, for an increased activity on the part of the Federal Government, on the part of the States, and localities.

Mr. FOGARTY. Will you put all three in the record?

Mr. MACKENZIE. I will be glad to, sir.

(The reports of the three organizations referred to follow:)

RESOLUTION ADOPTED BY THE 1961 ANNUAL CONFERENCE OF THE U.S. CONFERENCE OF MAYORS, JUNE 14, 1961, WASHINGTON, D.C.

AIR POLLUTION CONTROL

Whereas recognition of the increasing contamination of our air has been given by the President in his message to Congress on natural resources on February 23, 1961, which stated that "Although the total supply of air is vast, the atmosphere over our growing metropolitan areas—where more than half of the people live—has only limited capacity to dilute and disperse the contaminants now being increasingly discharged from homes, factories, vehicles, and many other sources"; and

Whereas the continued growth of the population of this Nation, the projected increased urbanization, and economic growth all contribute to further potential contamination of this natural resource; and

Whereas 90 percent of our urban population live in localities having air pollution problems, and all 232 communities greater than 50,000 population have such problems and about 6,000 communities totally in the United States have air pollution problems for which action programs should be initiated or strengthened as soon as practicable; and

Whereas the economic damage from air pollution and its threat of chronic health impairment of our population requires greater national attention to this problem by all levels of industry and government; now, therefore, be it

Resolved by the U.S. Conference of Mayors, That (1) the Federal air pollution program be strengthened by—

(*a*) Providing for an expansion of the research program related to the causes, effects, and control of air pollution;

(*b*) Providing Federal technical and financial assistance to States and localities, in the development and support of programs designed to apply more effectively the knowledge we now have, and will have, in the future to the actual control of air pollution; and

(*c*) Providing through the Public Health Service of the Department of Health, Education, and Welfare, vigorous leadership in obtaining increased attention and the devotion of greater resources to the problem of air pollution control by all levels of government, industry, and the public.

AMERICAN MUNICIPAL ASSOCIATION, THE NATIONAL MUNICIPAL POLICY, 1962

1. AIR POLLUTION CONTROL

Air pollution in our urban areas involves the emission of a broad variety of gases, fumes, and solids, and is associated with many and diverse activities of our population. These pollutants resulting from our increasing industrialization and urbanization now pose a threat to the health of our people.

The full extent of the air pollution problem is unknown because enough measurements have not been made. It is estimated that 10,000 communities in the United States have air pollution problems. All of the Nation's 215 metropolitan areas are affected, and in all, three-fourths of our total population is subjected to continuous or intermittent air pollution.

The acute lethal potential of air pollution has been demonstrated in Donora, Pa., where 20 persons died and half the population were made ill. Other effects of air pollution range from irritation of the eyes, nose, and throat, to more subtle and long-range physiological changes contributing to chronic illness or premature death.

Air pollution produces slums. Depreciation of land values alone due to air pollution has been estimated at over $200 million annually and depreciated values of buildings is several times this amount.

At the National Conference on Air Pollution in Washington in 1958, the cost of air pollution to every man, woman, and child in the United States living in urban areas was estimated to be $65. On this basis, air pollution is costing the Nation $7.5 billion annually.

Brief studies made thus far show that the menace of air pollution is far more extensive than has been previously realized.

We recognize that control of air pollution is a basic responsibility of State and local governments but the Federal Government must play an important part in the solution of this problem because of its national significance. The Federal Government has research resources available to it which the State and communities lack. It would be uneconomical and wasteful if each jurisdiction were to attempt to undertake such research.

In addition, there is need for financial assistance from the Federal Government to stimulate the development of and to improve regulatory control programs on State and local governmental levels.

There are numerous metropolitan areas which involve two or more States, and air pollution does not respect political lines of jurisdiction. The exercise of Federal leadership to deal with such problems on a problem-area basis can provide the stimulation to recognize and solve the air pollution problem.

1–1. The American Municipal Association therefore urges the enactment of a long-range Federal air pollution control program which would provide—

(1) Strengthened permanent Federal air pollution control legislation which would enable the U.S. Public Health Service to—

(*a*) Cooperate with other Federal agencies, State and local air pollution control agencies, and industries in the development of comprehensive air pollution control programs.

(*b*) Provide more vigorous leadership to secure needed attention, study, and correction of air pollution problems by all levels of government, by business and industry, and by the general public.

(*c*) Provide technical and financial assistance to State and local air pollution control agencies. Such Federal assistance is urgently needed to stimulate and aid in the conduct of more effective regulatory programs for air pollution control.

(*d*) Collect, evaluate, and disseminate basic data and other information relating to the prevention and abatement of air pollution.

(*e*) Provide enforcement assistance to be used when requested by any State, interstate, intermunicipal, or local government air pollution control agency.

(*f*) Provide grants-in-aid to State and local government air pollution control agencies, and other public and private agencies and institutions, and to individuals, for surveys and studies and for research, training, and demonstration projects.

(*g*) Encourage cooperative activities between State and local governments, including the enactment of interstate and intermunicipal legislation where necessary.

(2) Realistic appropriations are necessary to the success of an effective long-range air pollution program and must be commensurate with the magnitude of

the problems. To this end, the present limitations on annual appropriations for the air pollution program should be removed.

1–2. As the industry having primary responsibility for abatement of contaminants emitted by motor vehicles, the motor vehicle manufacturing industry of the United States is requested to report with all possible dispatch to the Nation, the States, and its cities concerning—

(1) Its constructive accomplishments to date in meeting this potential threat to the public health; and

(2) Planned future efforts to meet and avoid or minimize it, and the time scheduling of such efforts.

(3) As an immediate practicable and specific action, the industry is urged to provide, on a voluntary basis, devices on all new cars to minimize pollutant emissions from crankcase vent gases.

1–3. The American Municipal Association lauds the program and recommendations of the National Conference on Air Pollution of 1958 and urges that a second conference be held in 1962 or at as early a date as is practicable in order to evaluate progress in air pollution control programs, nationally, since the first conference.

National Association of County Officials, the American County Platform—1961

9. AIR POLLUTION

9–1. Basic responsibility for control in local governments.—The basic responsibility for formulating and carrying out air pollution abatement programs rests with the local governments. The abatement authority should be extended to State, interstate, or Federal jurisdiction, as appropriate, when the problem extends beyond local boundaries.

9–2. County or multicounty control.—NACO recognizes the need for air pollution control on a county or multicounty basis without regard to city boundaries. The laws of many States do not now permit the county or multicounty approach to the abatement of air pollution, a problem which does not respect political boundaries. NACO therefore urges State legislation that will enable individual counties or groups of counties to control their air pollution problems within one State or on an interstate basis in accordance with their needs.

9–3. National problem—Federal role in research.—Air pollution is a national problem both in urban areas and in agricultural areas. The economic damage from air pollution, its threat of health impairment of our population, the rapid growth of the population and of the national economy with the attendant increases in the quantities of air pollution from all sources, all indicate the need for intensified action at national, State, and local levels

On the Federal level, NACO recommends the broadening and strengthening of the existing air pollution program to provide:

(*a*) Establishment of a permanent Federal air pollution research and assistance program, without legislative limitations on annual appropriations or program duration.

(*b*) Expansion of the Federal research program related to the causes, effects and control of air pollution.

(*c*) Federal technical and financial assistance to States and localities in the development and administration of regulatory control of air pollution. Such Federal assistance is urgently needed to stimulate and aid in the conduct of more effective regulatory programs for air pollution control.

(*d*) Guidance to all Federal agencies by definition of policies and standards to be observed in the construction and operation of facilities and equipment, operated or controlled by Federal jurisdictions, to the end that exemplary air pollution control practices are followed.

9–4. Intergovernmental cooperation.—NACO believes that the solution of the national air pollution control problem will depend on, and we encourage, effective intergovernmental relationships between the agencies of the Federal, State, and local governments, and the coordination of research, developmental, and control activities being conducted by private research or academic institutions.

9–5. Second national air pollution conference.—NACO lauds the program and recommendations of the National Conference on Air Pollution of 1958 and urges that a second conference be held in 1961 or at as early a date as is practicable in order to evaluate progress in air pollution control programs since the first conference.

9–6. Motor vehicle contamination.—Pollution emissions from motor vehicles have become a significant national problem. NACO recognizes that responsibility for solving this problem is a burden of the vehicle manufacturer. Since inexpensive devices now are available to halt contaminant losses from vehicle crankcases, the National Association of County Officials urges the automobile industry to install such devices, as standard equipment, on all new vehicles manufactured for sale in the United States.

9–7. Tax encouragement.—NACO urges Congress to recognize the benefits resulting to public health and welfare from costly and nonproductive industrial air pollution treatment works by permitting such works to be amortized at an accelerated rate for income tax purposes. Furthermore, we urge that State and counties take appropriate action to allow the exclusion of air pollution treatment works when assessing industrial plants for tax purposes.

NATIONAL GOALS IN AIR POLLUTION RESEARCH

Mr. FOGARTY. The report "National Goals in Air Pollution Research" was prepared by a group of pretty responsible and competent people, was it not?

Mr. MACKENZIE. Yes, sir.

Mr. FOGARTY. Will you put the names of the people and who they are in the record?

Mr. MACKENZIE. Yes, sir. We will be glad to.

(The requested information follows:)

THE SURGEON GENERAL'S AD HOC TASK GROUP ON AIR POLLUTION RESEARCH GOALS

Leslie A. Chambers, Ph. D., scientific director, Allan Hancock Foundation for Scientific Research, University of Southern California. (At time of appointment, director of research, Los Angeles County Air Pollution Control District.) James P. Dixon, M.D., commissioner of health, city of Philadelphia. (Resigned from task group August 1, 1959.) Curtiss M. Everts, Jr., executive secretary, Oregon State Air Pollution Authority. John M. Gaus, Ph. D., professor of government, School of Public Administration, Harvard University. Ewald T. Grether, Ph.D., Flood professor of economics, and dean, Graduate School of Business Administration, University of California. Charles M. Heinen, assistant chief engineer, materials laboratories, Chrysler Corp. Edward C. Logelin, vice president, U.S. Steel Corp. Louis C. McCabe, Ph. D., president, Resources Research, Inc. Norton Nelson, Ph. D., director, Institute of Industrial Medicine, New York University. Leslie Silverman, Sc. D., professor of engineering in environmental hygiene, School of Public Health, Harvard University.

Mr. FOGARTY. What do they recommend?

Mr. MACKENZIE. Well, we have had several groups, non-Federal, in general, that have included in reports——

Mr. FOGARTY. I am talking about this one entitled "National Goals in Air Pollution Research."

Mr. MACKENZIE. All right, sir. This one recommended a national program of research which would involve participation by the Federal Government, by industry, by States, and local governments, and, in general, calling for approximately a threefold increase in the level of such activity over the next several years.

Mr. FOGARTY. How many years?

Mr. MACKENZIE. It calls for a maximum by about 1965 approximately.

Mr. FOGARTY. That is only 2 more years.

Mr. MACKENZIE. Yes, sir.

The threefold expansion was to be above the level that occurred in 1960.

COMMITTEE ON ENVIRONMENTAL HEALTH PROBLEMS

Mr. FOGARTY. The committee headed by Paul M. Gross was made up of pretty competent people, too, was it not?

Mr. MACKENZIE. Yes, sir.

Mr. FOGARTY. Will you put their names and identification in the record?

Mr. MACKENZIE. I will.

(The requested information follows:)

MEMBERSHIP OF THE COMMITTEE ON ENVIRONMENTAL HEALTH PROBLEMS

Ahlberg, Dr. Clark D., Syracuse University, Syracuse, N.Y.

Anderson, Dr. Gaylord, School of Public Health, University of Minnesota, Minneapolis, Minn.

Chambers, Dr. Leslie A., scientific director, Allan Hancock Foundation for Scientific Research, University of Southern California, Los Angeles, Calif.

Dack, Dr. G. M., director, Food Research Institute, University of Chicago, Chicago, Ill.

Dambach, Dr. Charles A., director, Natural Resources Institute, Ohio State University, Columbus, Ohio.

DuBois, Dr. Kenneth P., Department of Pharmacology, University of Chicago, Chicago, Ill.

Goldblith, Dr. Samuel A., Department of Food Technology, Massachusetts Institute of Technology, Cambridge, Mass.

Gordon, Mr. Seth,[1] vice president, North American Wildlife Foundation, 1390 Seventh Avenue, Sacramento, Calif.

Gross, Dr. Paul M., chairman, Department of Chemistry, Duke University, Durham, N.C.

Handler, Dr. Philip, Department of Biochemistry and Nutrition, Duke University School of Medicine, Durham, N.C.

Hatch, Dr. Theodore F.,[2] professor of industrial health engineering, University of Pittsburgh, Pittsburgh, Pa.

Logan, Dr. John, chairman, Department of Civil Engineering, Northwestern University, Evanston, Ill.

Merrill, Dr. Malcolm,[3] director of public health, State department of public health, Berkeley, Calif.

Metzler, Mr. Dwight, State board of health, State Office Building, Topeka Avenue at Tenth, Topeka, Kans.

Morgan, Dr. Russell,[4] professor of radiology, Johns Hopkins University Medical School, Baltimore, Md.

Mrak, Dr. E. M., chancellor, University of California, Davis, Calif.

Silverman, Dr. Leslie, School of Public Health, Harvard University, Cambridge, Mass.

Weckel, Dr. K. G., professor of dairy and food industries, College of Agriculture, University of Wisconsin, Madison, Wis.

COMMITTEE ON ENVIRONMENTAL HEALTH PROBLEMS, SUBCOMMITTEE ON AIR POLLUTION

Dr. Malcom Merrill, chairman, director of public health, State department of public health, Berkeley, Calif.

Dr. Charles A. Dambach, director, Natural Resources Institute, Ohio State University.

Dr. Eugene Gillis, health commissioner, Philadelphia Department of Public Health.

Mr. S. Smith Griswold, air pollution control officer, Los Angeles County Air Pollution Control District.

Dr. Glenn R. Hilst, vice president, Travelers Research Center, Inc.

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[1] Water Pollution Control Advisory Board member.

[2] Surgeon General's Advisory Committee on Occupational Health member.

[3] National Advisory Committee on Community Air Pollution member.

[4] National Advisory Committee on Radiation member.

Dr. H. F. Johnstone, research professor of chemical engineering, Department of Chemistry and Chemical Engineering, University of Illinois.

Dr. Robert A. Kehoe, professor of industrial medicine, Kettering Laboratory, University of Cincinnati.

Dr. John T. Middleton, chairman, Department of Plant Pathology, University of California.

Dr. Norton Nelson, director, Institute of Industrial Medicine, New York University.

Mr. Alexander Rihm, Jr., executive secretary, Air Pollution Control Board, New York State Department of Health.

Dr. Waldo L. Treuting, School of Public Health, University of Pittsburgh.

COMMITTEE RECOMMENDATIONS

Mr. FOGARTY. They reported last November. What were their recommendations?

Mr. MACKENZIE. In general, in the research field, they endorsed the recommendations of the national goals' report, and indicated that, in their opinion, this was minimum and it would be desirable to augment it in several areas of research.

Mr. FOGARTY. Will you put all of them in the record?

Mr. MACKENZIE. Yes, sir.

(The requested information follows:)

SPECIFIC CONCLUSIONS AND RECOMMENDATIONS

1. The Subcommittee on Air Pollution takes cognizance of the research recommendations contained in the 1960 report of the Surgeon General's task group entitled "National Goals in Air Pollution Research" and concludes that this provides the basic plan of needed research and time phasing. The subcommittee believes, however, that the level of support recommended in each of the areas outlined in that report is minimal and concludes that among areas currently needing particular emphasis by the Public Health Service are the following:

(*a*) Intensified studies of time and space variability of urban pollution levels under various source, topographic, and meteorologic conditions.

(*b*) The specific interrelationships of air pollution and the social and economic development of communities in urban areas.

(*c*) Increased emphasis on development of adequate automatic instrumentation and procedures for identification and measurement of air pollutants by the Public Health Service.

(*d*) Extension and intensification of the studies of interreactions pollutants in the atmosphere.

(*e*) Increased studies on synergistic effects of pollutants on physical and biological systems.

2. The subcommittee has inquired into the current facilities available to the Public Health Service for the conduct of its intramural research program in air pollution as outlined in "National Goals in Air Pollution Research" and supplemented above, and concludes that these are grossly inadequate to carry out the research program recommended. It further concludes that the present geographic separation of the central core research program from the operations and administrative elements is a handicap to the fulfillment of the mission of the Service in air pollution control.

3. The subcommittee concludes that there is a lack of sufficient numbers of trained personnel to carry on adequate air pollution programs nationally and recommends that the Public Health Service devote increased attention to the training of research, technical, and administrative personnel. It is recommended that such training assistance continue to be both intramural and through training grants to universities and other qualified institutions. The committee concludes that the existing intramural training program also suffers from inadequate facilities and from geographical separation from the administrative and operations parts of the program. It further concludes that the program could be made more effective by fuller association with the intramural training programs in other fields of environmental health. This association could be best achieved in the recommended National Environmental Health Center.

4. The subcommittee has examined, in addition to the research and training functions, the present operational functions, including technical assistance of the Public Health Service air pollution program and concludes that it is soundly conceived and, within the resources available, effectively executed. It concludes, however, that the program is handicapped by the lack of adequate physical facilities in which to operate and by the separation of the administrative and intramural research parts of the program.

5. The subcommittee concludes that the attainment of the objective would be better assured by centralized interdisciplinary technical efforts as recommended for the National Environmental Health Center. The subcommittee further concludes that greater emphasis should be placed on the application of existing knowledge in the control of air pollution and recommends that for this purpose the Public Health Service provide increased stimulation and assistance to State and local governments. Among the areas in which the Public Health Service must provide leadership and technical and financial assistance are—

(*a*) appraisal of present and potential air pollution levels in specific localities and their probable effects;

(*b*) stimulation of local participation in air pollution abatement from the administrative, legal, and sociological points of view;

(*c*) provision of improved methods and instruments for recording emissions, atmospheric levels of pollutants, and effects of pollution;

(*d*) administrative procedures useful in combating interjurisdictional problems due to large-scale dispersion of pollutants; and

(*e*) analysis of meteorological conditions in specific areas and relationships to border regions.

One of the means for the attainment of these objectives is grants for specific projects to stimulate the development, improvement, and extension of local air pollution control programs by State and community agencies.

6. The subcommittee recommends that the Public Health Service assume the responsibility for the development of recommended air quality standards based on scientific information, to guide communities in the establishment and conduct of control programs.

7. The subcommittee recommends that the Public Health Service assume the leadership in the development of standardized methods for sampling, analysis, and recording of air pollutants.

8. The subcommittee concludes that the funds available to the Public Health Service in the past have been distributed so as to obtain a reasonable balance among research, training, and operations activities in the air pollution program. In the subcommittee's considered judgment, the further needed development of the air pollution program will require the progressive increases in research, training, and operations, including technical assistance, as heretofore outlined and as tabulated below:

[Millions of dollars]

Year	1956	1960	1962	1963 [1]	1966 [1]	1970 [1]
Research	1.52	4.56	7.82	12.0	16.0	16.0
Training [2]	.04	.25	.37	1.5	5.0	5.0
Operations	.17	.39	.61	[3] 4.0	[3] 12.0	[3] 15.0
Total	1.73	5.20	8.80	17.5	33.0	36.0

[1] Levels of expenditure recommended by the subcommittee, with appropriate recognition of the recommendations of the Surgeon General's Committee on National Goals in Air Pollution Research.

[2] Estimates of expenditures for training in 1963 and thereafter include costs for specialized training of research workers and teachers. for graduate training of persons in specific disciplines in control operations, and short-term training of field and technical personnel. The subcommittee considers it important that the scheduling of the various types of training be coordinated with consideration of needs for various categories, lag time for curriculum development, and other factors.

[3] The increases reflect additional funds for grants-in-aid for the purpose of providing assistance in development, improvement, and extension of local air pollution programs.

The subcommittee feels strongly that there has been a marked imbalance in regard to facilities for this rapidly expanding program which has been faced with so many demands. No funds have been appropriated to the Service for air pollution facilities and such expansion as has been accomplished through rental of quarters and temporary construction, has of necessity been at the expense of program operations and research activities. The advantages of such a facility are covered in greater detail hereafter.

9. The subcommittee has examined the research, training, and operations programs of the Division of Air Pollution in relation to other environmental health programs of the Public Health Service and concludes that the coordination and integration of these various programs will—

(1) effect savings, promote the prevention of undesirable duplication, facilitate the sharing of knowledge and the exchange of ideas, and achieve a broader coverage of studies;

(2) make for a more productive research program and provide a more stimulating and effective training program; and

(3) provide for more efficient operations, all of which are designed to reduce the effect on humans and on the community of a wide variety of environmental pollutants in air, water, and food. The committee concludes that among the additional benefits to the air pollution program of such an association are the following:

(*a*) Increase in the likelihood of attracting and retaining personnel of outstanding ability who would be capable of evaluating all available information on air pollution and of acting as a focal point for the total national effort.

(*b*) Among the facets of environmental health related to air pollution now relatively underdeveloped that would be attacked more effectively by close association of the various programs are: bioclimatology; meteorological factors in relation to air pollution; relationship of indoor to outdoor atmospheric environment; and the role of natural resources use such as agriculture and forestry in relation to air pollution.

(*c*) Provision of centralized services and resources that would be beyond the reach of any single division, such as centralized instrumentation and analysis functions, computer operations and data processing, public information services, graphic arts services, experimental animal supplies, and central administrative services.

The contemplated center should be funded and staffed to permit the maximum stimulation and utilization of the total national resources for research, training, and operations in the solution of environmental health problems. The center should be staffed with a core group of topflight personnel in the various disciplines, which would be engaged in activities of planning, stimulation, coordination, evaluation, provision of scientific leadership, and conduct of research, training, and operations programs of national relevance. The subcommittee, at the same time, is cognizant that certain highly specialized functions and services would of necessity have to continue to be specific-program-oriented and directly associated with such programs.

10. The subcommittee recommends that in order to meet the growing need for Federal action to achieve the above objectives in the field of air pollution control, there be established at the earliest possible time an air pollution facility for research, training, and operations. Ideally this facility would be part of a National Environmental Health Center provided this does not result in undue delay.

COST OF CARRYING OUT RECOMMENDATIONS

Mr. FOGARTY. How much in money?

Mr. MACKENZIE. They recommended a level for research of $12 million in 1963.

Mr. FOGARTY. And what do you have in your budget for 1963?

Mr. BERSANO. The 1963 amount is $8.7 million.

Mr. MACKENZIE. Yes, $8.7 million.

Mr. FOGARTY. What are the other recommendations on this?

Mr. MACKENZIE. In terms of money, sir?

Mr. FOGARTY. Yes.

Mr. MACKENZIE. They recommended $1.5 million for training, including both grants and——

Mr. FOGARTY. What do you have in the budget?

Mr. MACKENZIE. It is about three-quarters of a million dollars.

Mr. FOGARTY. And what else? Go right down the list and tell us what you have in the budget compared with their recommendation.

Mr. MacKenzie. The third recommendation that they made was for $4 million which reflected an increase for technical asistance and for grants-in-aid for the purpose of providing assistance in the development, improvement, and extension of State and local air pollution control programs.

Now in connection with this latter item, I would like to point out that the current provisions of the Air Pollution Act do not include authority for grants of this type.

Mr. Kelly. The President is recommending legislation in this field.

PROPOSED BUDGET INCREASES

Mr. Fogarty. The so-called program increases set forth on page 6 are only increases from what the Secretary and Bureau of the Budget will let you spend this year, is that right?

Mr. MacKenzie. Yes, sir.

Mr. Fogarty. Will you briefly explain each of these?

Mr. MacKenzie. Yes, sir.

The first item on page 6 is concerned with research grants. We are currently operating at a level in 1962 of about $1.85 million for this purpose and are developing a backlog of grants which are recommended for approval, which we estimate will total approximately $1 million at the end of this fiscal year. The proposed increase of $868,000 will materially augment the support of research grants in this program area.

The training grants item, an increase of $337,000, will augment training grants which are being made to universities in the present year in the amount of about $100,000.

Overall, we estimate that, for the period up to 1970, there will be a need for specially trained individuals in the air pollution research and control fields of approximately 4,000 additional people.

We believe it is essential that an activity be mounted of greater magnitude than heretofore to provide this trained cadre, and the intent in the increase requested is to develop the university curriculums and faculty that can serve as a backbone for initiating this program.

The additional items of increase, three, four, and five, relate to our internal research program, concerned with assay of the quality of the atmosphere in various cities in the United States, the chemical changes that occur in it, and laboratory and field studies primarily concerned with the problem of respiratory diseases as these are caused or made worse by air pollution generally.

The final item, No. 6, is for a small expansion in our short-term training courses, which are given at Cincinnati to working professional people, employees of States, local governments, and of industry.

These courses are, in general, intended to promote the use of the best practices and to acquaint people now working in the field with the latest information that has been developed through research.

NATIONAL AIR SAMPLING NETWORK

Mr. Fogarty. Tell us just what the national air sampling network is, and how it operates.

Mr. MacKenzie. Yes, sir.

The national air sampling network has about 250 sampling locations in both urban and rural areas in all of our States. Samples are collected, on a pre-set schedule, of particulate material filtered from the air at each sampling location. These samples are analyzed for inorganic materials, for organic materials, and assayed for radioactivity.

The particulate sampling network is being augmented in two ways: we are now collecting, from a limited number of sampling locations, which we hope will total perhaps 50 by the end of this year, 24-hour composite samples of pollutant gases. These will be samples for sulphur dioxide, oxides of nitrogen and oxidants, primarily.

We have also this year initiated a more intensive sampling program in seven major cities to analyze and monitor for the presence, on a continuous basis, of several important gaseous pollutants. These would include sulphur dioxide, carbon monoxide, nitric oxide, nitrogen dioxide, oxidant, hydrocarbon, and ozone.

Such continuous monitoring information has not been available generally except from a very limited number of locations, principally Los Angeles and a few other places in California.

We need to know much more about the composition of our atmosphere that our people breathe and which affects property, both in urban and rural locations.

RESULTS OF THE LOUISVILLE AND NASHVILLE STUDIES

Mr. FOGARTY. On page 17, you say you have completed studies in Louisville and Nashville. What were these studies and what new knowledge did you gain?

Mr. MACKENZIE. The study in Louisville was primarily undertaken to locate the sources of pollution and to determine the significance of some sources of pollution that had been the causes of numerous complaints in the area. The report gave information on the extent of the pollution problem in Louisville and identified the principal sources of the pollutants that were causing the difficulty.

The study in Nashville had a somewhat different purpose. It was a research type of project rather than one for extending technical assistance to the local authorities.

The Nashville study had a number of purposes, relating to procedures for sampling to delineate the quality of the atmosphere in an urban community, to methodology of studying the meteorological parameters that are pertinent, and included epidemiologic studies of the effects on people of the type of pollution which is predominant in Nashville.

This type of pollution is characterized by the presence of sulfur oxides in the atmosphere and particulate pollution, primarily from burning solid fuel.

One important result that has already been published is concerned with the relationship between asthma symptoms and the levels of sulfur dioxide in the community atmosphere. It was found that, among susceptible individuals, the rate of asthmatic attacks varied directly with the concentrations of sulfur dioxide pollution, both as these varied from time to time in one location, and also as they varied from one location in the city to another.

In other words, the people who lived in sections of the city most heavily polluted with sulfur dioxide had higher rates of asthmatic attacks than in sections less polluted, and in any of these sections, on the occasions on which the pollution was higher due to meteorological conditions, the attack rates were greater.

COST OF AIR POLLUTION

Mr. FOGARTY. Will you supply for the record facts and figures showing financial cost of air pollution?

(The requested information follows:)

ECONOMIC COSTS OF AIR POLLUTION

Economic losses and damages from air pollution in the United States are sustained in a variety of ways such as the direct or indirect effects of pollution on human, animal, and plant life, corrosion and soiling of various materials and structures, depreciation of property values, disruption of transportation, and losses of unburned fuel. No comprehensive national surveys of such losses and damages have been made. The estimates of national economic losses due to air pollution which have been made from time to time have been based on extrapolation of data obtained in local areas. Much of the local area data is limited in its coverage to one or a few types of such damage such as soiling, loss of agricultural crops, etc.

During 1911–13, the Mellon Institute undertook an economic study of nuisances caused by smoke in Pittsburgh, Pa., and the estimates made at that time were approximately $8.5 million annually. Later, in 1937, studies in Chicago, Ill., and St. Louis, Mo., estimated that the annual losses in those cities were $30 million and $19 million, respectively.

Other estimates have placed the cost of polluted air in Chicago at $50 million annually; in New York City, more than $100 million; and the State of New York, more than $150 million. Other studies have shown the annual loss due to smoke in Pittsburgh to be $10 million; in Cincinnati, $8 million; and in Cleveland, $6 million.

Data collected by the Stanford Research Institute from the 15 large cities in the Nation estimate the direct loss to specific businesses and structures. Thus, 20 large department stores showed annual losses of $20,000 to $50,000 each; 10 hospitals indicate an annual outlay of $4,000 to $20,000 each; 30 hotels encountered losses of $9,000 to $25,000 each; the annual loss for 35 large office buildings amounted to $11,000 to $35,000 per building.

Estimates of losses caused by corrosion of metals and other materials by pollutant acid gases are largely unavailable. However, surveys have shown that corrosion of steel surfaces in cities may be 30 times as great as that in rural areas.

Estimates of air pollution damage to farm animals and agricultural and ornamental plants are still subject to technical uncertainties, but have tended to increase as research on these problems has progressed. Thus, estimates of damage to crops in southern California were placed at $500,000 in 1939, over $3 million in 1953, and over $8 million in 1958. Reconnaissance surveys of plant damage have shown widespread losses identifiable as caused by fluoride, sulfur dioxide, and oxidant types of pollution. Court cases of record in 1956 in various parts of the country involved claims of agricultural losses in excess of $50 million from fluoride pollution alone. It has been reported informally that losses of truck crops in one eastern State totaled in excess of $20 million in one recent crop year. While the total plant damages are still subject to much uncertainty, national estimates recently have run between $150 million and $500 million annually.

Owners of real estate are faced with decreased market value due to rapid depreciation in undesirable polluted areas. St. Louis reported property values declined $25 million per year for 10 years before corrective control measures were taken to control air pollution.

Summation of the above types of data to produce national estimates of economic damage and losses is fraught with much uncertainty. A number of investigators, however, have concluded that such damages average between $10 and $65 per capita annually throughout this country. This has resulted in national estimates varying recently from approximately $7.5 billion to over $11 billion per year. None of these estimates have taken into account the effects of air pollution on human health. In order to complete the picture, it would be desirable to include estimates of the costs of air pollution to human health, involving both acute and chronic health damages. No such estimates are available, although it is known that the number of deaths from respiratory diseases in urban areas of 100,000 population or more is 40 percent greater than in rural populations, and there is increasingly more definitive data being developed from research which links air pollution with respiratory disease generally.

HISTORY OF BUDGET REQUEST

Mr. Fogarty. Also will you supply for the record what you asked the Department for and give us a breakdown of positions and programs that have been denied because of the cut made by the Department? And also the same regarding the cut applied by the Bureau of the Budget?

Mr. MacKenzie. Yes, sir.

Mr. Fogarty. And tell us of the importance of these programs, as you see them, and why these amounts should have been allowed.

Mr. MacKenzie. Yes, sir.

(The requested information follows:)

Budget estimates, fiscal year 1963, Division of Air Pollution

	Request to Department		Department allowance		Decrease by Department		Bureau of Budget allowance		Decrease by Bureau of Budget		Total decrease	
	Positions	Amount	Positions	Amount	Positions	Amount	Positions	Amount	Positions	Amount	Positions	Amount
Total	540	$17,692,000	480	$13,914,000	−60	−$3,778,000	410	$10,069,000	−70	−$3,845,000	−130	−$7,623,000
Grants		8,850,000		5,850,000		−3,000,000		3,173,000		−2,677.000		−5,677,000
Research		5,000,000		4,000,000		−1,000,000		2,723,000		−1,277,000		−2,277,000
Training		850,000		850,000				450,000		−400,000		−400,000
Survey		3,000,000		1,000,000		−2,000,000				−1,000,000		−3,000,000
Research	409	7,211,000	385	6,824,000	−24	−387,000	341	6,014,000	−44	−810,000	−68	−1,197,000
Analysis		3,365.000		3,271,000		−94,000		3,100,000		−171,000		−265,000
Medical and biological		2,258,000		2,123,000		−135,000		1,757,000		−366,000		−501,000
Community		1,588,000		1,430,000		−158,000		1,157,000		−273,000		−431,000
Technical services	89	1,075,000	60	797,000	−29	−278,000	44	582,000	−16	−215,000	−45	−493,000
Training	42	556,000	35	443,000	−7	−113,000	25	300,000	−10	−143,000	−17	−256,000

Research grants (—$2,277,000)

Research grants constitute the mechanism of support to research workers in universities and other organizations outside the Federal Government. Research performed under grants has provided the Federal air pollution activity with significant findings and knowledge in the past few years. Research workers have responded to the need for work in this field and applications have increased materially. On the basis of an analysis of past experience, including the percentage rate of approval of applications, a projection of the trends of this sharply increased research interest, and research needs in the field, a budget request of $5 million was made by the Public Health Service. This would have been used for support of approved research applications in nearly all of the biomedical and physical sciences and engineering aspects of air pollution, and, it is estimated would fund all applications approved by the non-Federal advisory review bodies. The $2,277,000 decrease would have provided for approximately 90 research grants.

Training grants (—$400,000)

Manpower studies have indicated a need by 1970 of approximately 4,000 additional specially trained technical personnel in the air pollution field. In order to meet this need, it is considered necessary to develop an adequate educational capacity in our universities so that they can provide the required training. Accordingly, an estimate of $850,000 was initially requested, with primary emphasis on the need to develop suitable curriculums and teaching capacity in our universities to permit them to train specialists for research and for control program activity. The estimate also provided for traineeships to qualified individuals for graduate-level air pollution training.

With the $400,000 which was disallowed in this activity, the number and scope of proposed grants to universities and traineeships would have been increased.

Survey grants (—$3,000,000)

Authorization for grants for surveys and studies was provided to the Public Health Service by the Congress in Public Law 159, as amended by the 86th Congress. These grants are intended to provide financial assistance to States and localities in developing regulatory control programs. Such surveys will provide needed data which can be used by State and local agencies in making rational decisions as to the type and extent of control programs necessary to meet their needs. Congress has placed the responsibility for the regulatory control of air pollution with the States and localities, but has indicated a Federal role in assisting them in meeting that responsibility. The complete deletion of this item from the budget request prevents the initiation of this program element designed to provide Federal leadership in the stimulation of development and improvement of needed State and local air pollution regulatory control programs.

Research (—$1,197,000)

The development of the research program estimate was based on program experience as to research needs, capacity, and on the criteria and guidelines recommended in the report "National Goals in Air Pollution Research." To meet these, the program requested a budget of $7,211,000 for operations, including direct Public Health Service research, research conducted by other Federal agencies, and contract research by universities and other research institutions. The President's budget request contained $6,014,000 for this activity.

Analysis, identification, measurement, and control of air pollutants (—$265,000).—The original estimate requested would have permitted a desirable expansion of the program for sampling of gaseous pollutants in various communities within the Nation. This estimate also provided for expanded research on photochemical atmospheric reactions, more in line with the recommendation of the report "National Goals on Air Pollution Research" for a twofold expansion in research on atmospheric reactions of pollutants. The $265,000 decrease would have been used for a greater expansion in these areas of research.

Medical and biological studies (—$501,000).—The original estimate recognized the need for greater elucidation of the relationship of air pollutants to human health, as well as to agriculture—a need reflected in the recommendation of the Committee on National Goals in Air Pollution Research—for a threefold increase in the health studies and more than a tenfold increase in the agricultural studies. The original budget request placed primary emphasis on studies relating to the problem of chronic respiratory disease and studies on the basic mechanism of action of toxic agents. With the $501,000 which was disallowed, these studies would have been materially expanded.

Community and field studies (—$431,000).—Research in this area is essential to supplement the results of laboratory investigations and ascertain the degree of their applicability to man. These field studies also are aimed at assessing the extent and nature of the health effects occurring nationally as a result of air pollution. For these the Committee on National Goals in Air Pollution Research recommended a 7.9-fold increase to reach a peak by 1965 with a Federal expenditure of $3,200,000. The $431,000 would have been used to expand these studies sufficiently to meet the peak set for 1965.

Technical services (—$493,000)

The purpose of the program request for $1,075,000 was to provide broader technical assistance and consultation to the States and localities carrying out the responsibility of air pollution control. The additional funds would have provided for an expansion of these activities and allowed for more of the assistance needed and requested by State and local air pollution agencies. Coupled with the proposed survey grants, these technical activities were to provide the Federal leadership to assist the States in the assessment of their problems.

Training (—$256,000)

The short-term training program is aimed at shortening the gap between the acquisition of new research knowledge and its application in actual practice. The trainees are technical and professional employees of State and local governments and industry. As research in this field produces increasing amounts of new knowledge, it is highly desirable to take the steps needed to insure the application of such knowledge and thus obtain the potential benefits therefrom. The $256,000 disallowed would have provided for expansion and extension of the existing program designed to accelerate the attainment of this objective.

EMPHYSEMA

Mr. FOGARTY. Tell us what emphysema is, what the problem is, and what program you have to do something about it.

Mr. MACKENZIE. Yes, sir.

Emphysema is a crippling chronic respiratory disease which is characterized by loss of elasticity of the lung tissue. This makes it difficult for the affected person to breathe, and makes him expend a great deal more energy in the breathing process than is otherwise required. It lessens greatly the capacity of the individual to exercise or to do work.

Mr. FOGARTY. Is it easily detected?

Mr. MACKENZIE. It has not been easy to detect in the past.

It is often confused with other conditions.

Maybe some of my medical colleagues can supplement this, but it has often been confused with other chronic respiratory diseases, like bronchitis and so on, particularly in its early stages of development.

There are currently available, however, instruments for measuring and assessing respiratory function in people, much better than were available a few years ago, and we are, therefore, very hopeful that these new instruments will make it possible to undertake types of field studies that would be desirable for assaying respiratory capacity and assisting in diagnosis of this condition in individuals and correlating this with the environmental factors in areas where the people are living.

Mr. FOGARTY. How many people are affected by it, do you know?

Mr. MACKENZIE. Well, this is a difficult question to answer. There are about 9,000 deaths, I think, currently that are attributed directly to emphysema annually.

In a much larger number emphysema is cited as a secondary cause of death. It probably——

Mr. FOGARTY. What about disability?

Mr. MacKenzie. So far as disability is concerned, sir, it is the primary cause of respiratory disability among people in this country.

Mr. Fogarty. The problem is growing, is it not?

Mr. MacKenzie. Yes. It has increased severalfold in the last 10 years.

PROPOSED RESEARCH PROGRAM

Mr. Fogarty. What are you going to do about it next year? How much money do you have for this program?

Mr. MacKenzie. Currently, in our budget, we are including about $800,000 this year for studies.

Mr. Fogarty. Is that 1962 or 1963?

Mr. MacKenzie. 1962, I am talking about—on studies of the relationship between chronic respiratory disease and air pollution.

Under the budget which is before you, we would propose to increase to about $1,100,000.

Mr. Fogarty. What do you think you should be doing in this area?

Mr. MacKenzie. Well, we should be spending more.

Mr. Fogarty. About how much? What kind of a program would you like to see launched, and how much would it cost, in your opinion?

You can supply that for the record.

(The information requested follows:)

Research on Respiratory Diseases as Related to Air Pollution

From the accumulated evidence, it is obvious that respiratory diseases of many kinds are related to, affected by, or actually the result of air pollution.

For this reason, a large portion of the medical research of the Division of Air Pollution is oriented toward the field of respiratory diseases, including both acute and chronic conditions. Thus, studies on pulmonary physiology, on lung tissues and their mechanisms of defense, on the interaction of pollutants and infectious agents in the respiratory tract, and on the effects of gases and particles, and their mixtures, has been undertaken.

Areas of research have, of necessity, proceeded broadly, since the effects of other agents and factors, as pollens, smoking, weather and allergens must be taken into account in any study aimed at clarifying the relation of air pollution to the disease conditions of interest.

Present Division of Air Pollution activities include: support of 14 research grants, such as "Chronic Bronchitis—Study of Day to Day Variations," "Human Respiratory Cilia in Relation to Air Pollution," "Pulmonary Effects on Workers in Diesel Engine Houses," and "Studies of Pulmonary Clearance in Bronchial Disease"; financing of eight research contracts, such as a study of asthma "epidemics" in New Orleans, the effect of exposure of animals to pollutants on respiratory infections; the prevalence of emphysema as it relates to pollution in a State-wide area; and the operation of a direct program performing studies on pulmonary function changes related to respiratory disease states.

The problem, however, is large. Over 1 million people are believed to be so severely affected by emphysema as to be seriously disabled. The BOASI reports that 12 percent of its payments for disability are to such individuals. Deaths due to this condition have increased nearly fivefold in this Nation in the last 10 years. Increased numbers of respiratory deaths have contributed in substantial measure to the recent rise in the Nation's infant mortality. Asthma sufferers number in the millions. Respiratory diseases are the largest cause of work losses from industrial absenteeism.

Studies of the types listed above must be continued, and many should be expanded and extended. Surveys, such as the statewide study of emphysema, will need to be undertaken in a number of areas of the United States to evaluate the extent of the problem and its significance to the Nation's health, to define the relation of climate and geography to the incidence and severity of the conditions, and to evaluate the effects of the differing degrees and types of air pollution found in widely scattered sections. More intensive work is needed on the body defense mechanisms of the lungs: the role of air pollutants in paralyzing the cilia which "sweep" the trachea and bronchi clear of material; the action of certain specialized cells in removing particles trapped in the lung; the role of enzymes and chemical mediators present in the lung in inhibiting toxic agents or repairing damaged tissue; and the role of chemical contaminants in affecting changes in lung reflexes.

There are, in addition to the areas of study described above, "gap areas" wherein new research on various factors as related to air pollution must be encouraged and stimulated: studies of the lung tissue chemistry; research on the mucous secretions of the lungs and bronchi; the mechanism of damage and repair of the elastic tissues of the lungs; the assay of the irritant pollution agents and their mechanism of action; the survey of the extent of disability in pulmonary cripples and the history of their exposures to noxious agents; the role of smoking as a factor in these diseases; and the significance of airborne particles as carriers of noxious gases and vapors into the lung.

Most of the medical research conducted by the Division of Air Pollution is, in one degree or another, related to or closely allied with, studies on respiratory diseases, including lung cancer. The Ad Hoc Committee on National Goals recommended large increases in the medical field—to $4,750,000 in 1965 for health surveys and to $3 million for studies in pathology and physiology. The Gross Committee on Environmental Health Problems, similarly, recommended expansion and states:

"A causal relationship has also been suggested between air pollution and chronic obstructive ventilatory diseases which appear to be increasing in incidence in this country as industrialization increases. Isolated research findings * * * strengthen the conviction held by many experts in the field that these indicated relationships may be important leads to definitive knowledge, leads that should be vigorously pursued."

In summary, extension and expansion of existing research and the stimulation and encouragement of new research in gap areas are necessary. The present activities of the Division of Air Pollution in this field total approximately $800,000 in 1962; for 1963, $1,000,000 has been requested. The undertaking of the additional and expanded studies described above would require further funds for both direct and contract research and for research grants. The implementation of these areas of research should be carried forward in balance with other segments of the air pollution research program because of the close relationship between the biological and physical sciences factors in the total problem. The recommendations of the Gross committee and the original 1963 estimates prepared by the Division made adequate provision for the orderly development of such a balanced program.

Mr. Fogarty. Mr. Laird?

Mr. Laird. No questions.

Mr. Fogarty. Is there anything else you would like to say?

Mr. MacKenzie. No, sir.

Mr. Fogarty. Thank you very much.

Mr. MacKenzie. Thank you, Mr. Chairman.

NEED FOR INCREASED FUNDS FOR TRAINING ENVIRONMENTAL SCIENTISTS

Mr. Fogarty. Excuse me, Doctor; I have a letter here I had forgotten.

This is from P. H. McGauhey, of the University of California College of Engineering, dated January 23, 1962. He is the director of the sanitary engineering research laboratory and chairman, hydraulic and sanitary engineering.

This is a two-page letter which I will put in the record. But he said:

> We need to invest more money in the institutional grants which enable schools to initiate and maintain programs in such environmental health sciences as sanitary engineering, radiological health, air pollution control, and environmental sanitation. We need also to invest more money in demonstration projects which serve both to train students and to develop practical applications of the results of research in environmental control.

Do you agree with that?

Dr. ANDERSON. Yes, sir; we do. And, as a matter of fact, this recommendation was made to the Gross committee. They will probably talk about it later.

Mr. FOGARTY. All right, thank you.

(The letter referred to follows:)

UNIVERSITY OF CALIFORNIA,
COLLEGE OF ENGINEERING,
Richmond, Calif., January 23, 1962.

HON. JOHN FOGARTY,
Chairman, Subcommittee on Departments of Labor, and Health, Education, and Welfare, Committee on Appropriations, House of Representatives, Washington, D.C.

DEAR MR. FOGARTY. As one who is deeply concerned with educating young men in sanitary and public health engineering to meet the extreme manpower shortage which exists in these areas, I think it appropriate to call to your attention the need for financial support in these areas and the important contribution being made by the Department of Health, Education, and Welfare.

Through its programs of research traineeships, research fellowships, demonstration grants, and institutional grants, the Public Health Service is doing more than any other single agency to meet the Nation's need for engineers trained in the environmental health sciences. As you probably already know, modern education for public health and sanitary engineers at the undergraduate level has been broadened in the area of humanistic-social studies and designed in the area of basic sciences. This has meant that the specialized training which fits students for participation in the environmental control programs so important to the health of citizens, must be acquired through graduate study. However, essentially no graduate student today has the financial resources to support himself throughout the M.S. or Ph. D. program. Here at the University of California where we have the largest program of graduate sanitary engineering in the United States, we make use of fellowships and scholarships provided by the State and by individual donors. We also offer part-time teaching fellowships to the extent of our financial resources. These take care of only about one-third of the graduate students we have been able to recruit. The remaining two-thirds are supported by direct employment of students on research, much of which depends upon grants-in-aid from the National Institutes of Health and the National Science Foundation. Others are supported through the research and graduate programs of the Public Health Service. A similar story could be told by each of the other universities engaged in education in public health and sanitary engineering.

In spite of what seems on the surface to be a quite large sum of money for support of education in public health and sanitary engineering, the number of graduate students which can be supported and which can be attracted to the field is hardly 10 percent of our annual needs. It is therefore of the utmost importance that we as a nation invest more heavily in programs such as now offered through the activities of the Department of Health, Education, and Welfare. We need an increased number of traineeships for students as well as support for periods longer than the present one here. We need to invest more money in the institutional grants which enable schools to initiate and maintain programs in such environmental health sciences as sanitary engineering, radiological health, air pollution control, and environmental sanitation. We need also to invest more money in demonstration projects which serve both to train students and to develop practical applications of the results of research in environmental control. We need support for short-term refresher courses and for maintenance of training centers which, in cooperation with universities, can retrain staffworkers in public health organizations.

Splendid work is being done in all of the foregoing areas by the Public Health Service. However, in comparison with the needs and with the money we are investing in many far less fruitful undertakings, the sum devoted to our environmental health problems is absurdly small. I therefore urge that the Committee on Appropriations be made aware of the need for trained manpower in the environmental health sciences and of the vast good that can accrue to the Nation through the investment of a surprisingly modest sum of money.

Respectfully yours,

P. H. MCGAUHEY,
Director, Sanitary Engineering Research Laboratory, and
Chairman, Hydraulic and Sanitary Engineering.

MILK, FOOD, INTERSTATE, AND COMMUNITY SANITATION

Tuesday, February 6, 1962.

WITNESSES

WESLEY E. GILBERTSON, CHIEF, DIVISION OF ENGINEERING SERVICES AND FOOD PROTECTION

DR. ROBERT J. ANDERSON, DEPUTY CHIEF, BUREAU OF STATE SERVICES

DR. ARDELL B. COLYAR, CHIEF, ARCTIC HEALTH RESEARCH CENTER

PETER J. BERSANO, FINANCIAL MANAGEMENT OFFICER FOR ENVIRONMENTAL HEALTH PROGRAMS

Object classification

[In thousands of dollars]

		1961 actual	1962 estimate	1963 estimate
11	Personnel compensation:			
	Permanent positions	1,462	1,812	1,928
	Positions other than permanent	17	30	37
	Other personnel compensation	57	68	68
	Total personnel compensation	1,537	1,909	2,032
12	Personnel benefits	216	274	301
21	Travel and transportation of persons	207	248	277
22	Transportation of things	25	44	50
23	Rent, communications, and utilities	84	96	103
24	Printing and reproduction	27	31	49
25	Other services	66	134	156
	Payment to—			
	"Bureau of State Services management fund"	147	163	302
	"National Institutes of Health management fund"	33	43	56
26	Supplies and materials	79	108	114
31	Equipment	56	73	83
32	Lands and structures	15	1,570	
41	Grants, subsidies, and contributions	2,436	3,147	3,979
	Total obligations	4,930	7,840	7,502

Personnel summary

	1961 actual	1962 estimate	1963 estimate
Total number of permanent positions	255	310	322
Full-time equivalent of other positions	3	5	6
Average number of all employees	241	278	300
Number of employees at end of year	261	325	340
Average GS grade	6.9	7.2	7.2
Average GS salary	$6,170	$6,272	$6,242
Average salary of ungraded positions	$6,607	$6,901	$6,901

Program and financing

[In thousands of dollars]

	1961 actual	1962 estimate	1963 estimate
Program by activities:			
1. Research grants	2,436	3,147	3,979
2. Research, training, and technical services	1,980	2,426	2,841
3. Arctic Health Research Center	507	730	682
Total program costs [1]	4,923	6,303	7,502
Change in selected resources [2]	7	1,537	
Total obligations	4,930	7,840	7,502
Financing:			
Comparative transfers from other accounts	−4,930	−682	
Unobligated balance lapsing		262	
New obligational authority		7,420	7,502
New obligational authority:			
Appropriation		7,424	7,502
Transferred to "Operating expenses, Public Buildings Service", General Services Administration (75 Stat. 353)		−4	
Appropriation (adjusted)		7,420	7,502

[1] Includes capital outlay as follows: 1961, $45,000; 1962, $1,554,000; 1963, $249,000.

[2] Selected resources as of June 30 are as follows: Unpaid undelivered orders, 1960, $47,000; 1961, $54,000; 1962, $1,591,000; 1963, $1,591,000.

Mr. Fogarty. All right, Mr. Gilbertson, go ahead.

General Statement

Mr. Gilbertson. Thank you, Mr. Chairman.

I have a statement which I will file for the record, and read the summary.

Mr. Fogarty. All right, we shall place your other statement in the record.

(The statement follows:)

Statement by Chief, Division of Environmental Engineering and Food Protection on "Milk, Food, Interstate, and Community Sanitation, Public Health Service"

Mr. Chairman and members of the committee, the funds requested in this appropriation will provide research and technical assistance to States, municipalities, and industry to improve and protect the public health and general welfare through a variety of environmental measures. They include the fields of milk and food, public water supply, solid wastes disposal, community environmental development, and to carry out our statutory responsibilities for control of environmental sanitation—water, food, and wastes—on interstate carriers—airlines, railroads, buses, and vessels. I would like to emphasize the major areas of urgency within these programs.

MILK, FOOD, AND SHELLFISH SANITATION

Food—a major component of man's environment—exerts important multiple effects on human physiology and psychology. Food may serve, also, as a carrier of chemical and biological contaminants acquired from soil, air, water, food handlers, equipment, and many other sources. Much useful information is at hand concerning the impact of diet and food contaminants on health, but some relationships are not yet clearly understood. Enough is known, however, to indicate that there is a rapidly increasing disparity of serious proportions between the rate at which new public health problems are arising due to technological changes in the food field and the level of effort being directed toward their solution. The food industries are actively engaged in the commercial application of new processes, and official agencies are attempting to determine the safety of finished products without full knowledge as to health hazards and applicability of existing standards. More active participation of the Public Health Service in a national program to develop additional basic knowledge and know-how is needed.

The Service is continuing its work in milk, shellfish, and food-service sanitation research and technical assistance. Emphasis has been placed on the cooperative programs for certification of interstate milk and shellfish shippers, and the initiation of important milk and food research studies. Service responsibilities in the interstate milk certification program are now being conducted at approximately 75 percent of the level required. The additional resources requested in 1963 would provide for meeting the basic Federal responsibilities, at the currently required level of operations. In the shellfish program, we are attempting to meet the critical situation which occurred this past year during which we had four disease outbreaks—two major ones—-associated with oysters and clams harvested from polluted water. Newly recruited staff members are receiving training in 1962, and plans for 1963 call for intensification of State program evaluations and the initiation of a Service activity of check ratings on sanitary surveys. These will be possible because of improvement in staffing the certification program of the Public Health Service. Work is also progressing on the design of the two shellfish sanitation centers which will be established for research studies on viruses, bacterial indices, purification processes, and problems of radioactive and chemical contamination. After evaluation of numerous areas, ideal sites on Narraganset Bay and on Mobile Bay were selected and later made available at no cost to the Government. It is anticipated that construction of the new centers will be completed during 1963.

Food service sanitation activities in 1962 were primarily directed toward the development of a "Food Service Sanitation Manual" for use by States, cities, and industry. This new, practical guide places major emphasis on sanitary control on potentially hazardous foods. Plans for 1963 provide for a series of field training seminars based on the new manual, and the conduct of selected demonstration projects designed to assist States and municipalities in the reorganization of their food protection programs. Methods for evaluation of the effectiveness of municipal food sanitation programs, derived from the new manual, will also be developed in 1963. The increase for milk and food service sanitation in this estimate is $226,000.

ENVIRONMENTAL HEALTH PLANNING IN URBAN AREAS

The expanding population and technology of our society has brought new and greatly intensified environmental health problems into being. In our larger metropolitan centers, the accumulated health deficiencies of many years have been accentuated and complicated by the growing variety and intensity of environmental hazards. Smaller urbanized areas, which in many cases have experienced explosive expansion of their populations, must now suddenly furnish needed water, sewage, and waste facilities on a community basis and provide such necessary adjuncts as open space for recreation and future development—without the benefit of organized planning. In areas where urban planning groups have been established, there has been a notable lack of recognition of environmental health needs in the formulation of comprehensive plans for the immediate and future growth of the area.

The Public Health Service has established a basic competence in environmental health urban planning and we are pursuing our mission with a twofold effort: First, by conducting studies and research projects in representative situations so as to accumulate information needed in developing much needed standards and criteria; and, second, by rendering technical consultation to State and local agencies to stimulate more effective use of environmental health resources in metropolitan planning and development. Our "Environmental Health Planning Guide," is a pilot instrument for self-evaluation of local problems, and has served as a basis for a number of technical assistance projects and field studies conducted to date. Included are Fort Wayne, Allen County, Ind.: Omaha, Nebr.; Lake County, Ill.; Morristown, Tenn.; and Kannapolis, N.C.

We are currently conducting a study in Seattle, Wash., at the request of the State and local health agencies concerned to delineate local problems and make recommendations for their most feasible solution.

GENERAL ENGINEERING

Inadequacies of solid wastes storages, collection, and disposal methods constitute a cause for concern among public officials responsible for the protection of the health of our population. For several years, State and local health authorities, public works agencies, and national professional groups have urged the Public Health Service to give more attention to the problems of solid wastes handling. We have started a program of study and technical assistance with a two-man staff. The increase of $59,000 requested for 1963 will provide limited regional competence for specialized consultation on solid wastes problems at the local level, and support at least one research project aimed at defining improved information for aiding local facilities.

The Public Health Service is receiving an increasing number of requests for assistance from State and local health and public works agencies, and professional organizations seeking technical assistance in several fields of environmental health engineering. This includes such areas as plumbing, individual water supply and sewage disposal systems, institutions and schools, migratory labor housing and camps, and swimming pools and bathing places. Additional services must be provided to these agencies through technical consultation and through producing technical guides, bulletins, and standards for use at all levels of public health activities. These activities constitute an important portion of the core program of local health departments. In many cases, the health department serves as consultant to other local governmental agencies on environmental health related problems. For example, health departments have traditionally cooperated with building departments in the development and application of health aspects of building and housing codes. The Service has attempted to provide authoritative information on technical details. To illustrate—the technical guide on "Individual Water Supply Systems," issued by the Service in cooperation with the Joint Committee on Rural Sanitation, has served as a national standard in securing improvements in the design, construction, and operation of the smaller, noncommunity type of water supply system. At the request of several Federal agencies, the publication is undergoing a major revision based on the changing problems of water supply protection. Our "Manual on Septic Tank Practices" has satisfied a similar need, particularly for individual residential sewage disposal systems. A revision of this manual is scheduled for 1964 to incorporate the results of research findings developed since the manual was last revised in 1957.

Staff assistance has been given on the revision of the American Standard (ASA) Plumbing Code which is recommended as a guide for local health agencies. These agencies are responsible for the enforcement of approximately 50 percent of the existing plumbing codes adopted by local jurisdictions throughout the Nation.

INTERSTATE CARRIER

The principal focus of activity in this area is the inspection and improvement of sanitary facilities and practices and the safeguarding of food and water supplies aboard interstate airlines, buses, railroads, and vessels.

There are approximately 475 major carrier companies, operating some 5,000 conveyances which transport over 2 million persons interstate daily. The attendant problems of water supply, sewage and waste disposal, and food sanitation require constant surveillance to protect the health of passengers and crews. Our legal responsibilities are discharged through close collaboration with the transportation industry and assistance from the State and local health agencies. The engineering aspects are handled through the review and approval of plans and specifications on sanitary aspects of conveyances and related facilities, coupled with the periodic inspection of operating conveyances and facilities in the field. Increased resources appropriated for 1962 were utilized principally in conducting an expanded program in safeguarding and improving the nationwide water supplies utilized by the interstate carrier industry. Certain investigations have raised questions concerning the possible relationship between chemicals in drinking water and the incidence of certain chronic diseases, such as heart disease, cancer, and possibly arthritis. Further studies are being conducted to establish whether a definite correlation exists between water quality factors and the incidence of these diseases. Selective sampling and analyses of representative water supplies, and correlation with disease incidence statistics through data processing techniques initiated with the 1962 increase, will be continued during the coming year in cooperation with the National Heart Institute, National Cancer Institute, and the National Institute of Arthritis and Metabolic Diseases.

RESEARCH GRANTS

The objective of our research grants program is to strengthen research in our program areas involving support of studies in the social, biological, physical, and engineering sciences on health aspects of man's relationship to his environment. It is apparent that the amount of research being conducted in the environmental engineering and food protection fields is insufficient in relation to program problems. At the present time some 165 projects are being supported. In the field of food sciences research, notable deficiencies exist with respect to marine biology as related to shellfish, and in process evaluation research from the safety and nutritional quality standpoints. Less than 20 percent of the total projects are in the field of environmental engineering. This indicates an even greater inadequacy in the related fields of environmental engineering and metropolitan environmental planning. The Division's new identification with research grants, started this year, is resulting in increasing emphasis in these neglected areas. We are pleased wth the response of the universities to our research grants program.

The funds requested will support some areas where particular research needs now exist: for example, the assessment of the effects of environmental stresses such as noise, light, heat, and vibration on the health of man; evaluation of new process principles for foods with particular reference to food safety and nutritional quality; basic and applied studies of the physiological and sociological requirements for housing and other occupied space.

TRAINING

Virtually all advisory committees which have analyzed the broad problems to be overcome in the environmental health field have emphasized the critical need for trained technical manpower. Each of the above-described program areas includes at least a nucleus of training staff. The current training program provides resident courses at the Robert A. Taft Sanitary Engineering Center as well as assistance to States and local agencies in planning, establishing, and presenting their own training courses. These courses also serve to provide the latest information to workers in the field regarding new developments and research findings. There is a pressing need for additional organized training activities to equip personnel throughout the public health community to better carry out their responsibilities. Our 1963 estimate provides for an increase of $74,596 in training activities.

ARCTIC HEALTH RESEARCH CENTER

The Arctic Health Research Center is the only institution in the Western Hemisphere the primary purpose of which is the scientific investigation of civilian health problems of low temperature areas. The United States lags behind the Soviet Union and Scandinavian countries in recognizing, supporting, and conducting the scientific endeavors essential to developing knowledge of such areas. Only as fast as man can come to grips with the health hazards of this environment will our last remaining frontier be developed. The rewards will be many, for Alaska contains vast untouched reservoirs of strategic materials, minerals, and vegetation that can enrich both the State and the Nation. Additionally, such knowledge can further embellish the vital role of Alaska in our national defense plan.

The center is engaged in research efforts directed at the unique problems of healthful living posed by the Alaskan environment. Both basic and applied research are being conducted in water supply and waste disposal, infectious diseases, dietary deficiencies, animal-borne diseases, insect control, and climatic adaptation of man. None of these subject areas is new to the field of public health. However, their environmental setting in most of Alaska is so different as to require special research. Some problems can be solved by conventional methods but others require adaptation or new approaches because of the long seasons of low temperatures, vast areas of permanently frozen ground, and prolonged periods of light and darkness, to mention some of the unique factors in arctic environment.

The increased appropriation allowed for 1962 was a step toward more rapid realization of these objectives for it permitted expanded and intensified effort in environmental sanitation and epidemiology. As a result, a study is being conducted to determine the feasibility of providing winter storage facilities for water by means of natural and artificial impoundments. We have also started studies to determine the maximum efficiency of septic tanks and seepage systems under Alaskan conditions. Laboratory facilities are being expanded to study infectious diseases more intensively and field investigations of selected disease outbreaks are being broadened to learn more about their nature in the Alaskan environment.

Included in this request is $682,000 for the Arctic Health Research Center. Last year funds for this activity were included in the appropriation "Communicable disease activities" which is one of the community health programs. The Arctic Health Research Center is now organizationally associated with the environmental health programs and this request for funds, therefore, is included with this appropriation.

SUMMARY

The budget request for 1963 of $7,502,000, a net reduction of $338,404, will provide an increase of $1,231,596 for expansion of certain activities. This increase is offset by the $1.570,000 nonrecurring construction costs of the two shellfish sanitation research centers. The major portion of the program increase, $832,000. is for research grants. The remaining $399,596 is requested to expand our milk and food activities, solid waste engineering, training activities, and review and approval of research grants.

Mr. Gilbertson. Mr. Chairman and members of the committee, our national program mission is to improve and protect the public health and general welfare through environmental measures. Included are milk and food sanitation, public water supply, solid wastes disposal, community environmental development, and sanitation on interstate carriers—airlines, railroads, buses, and vessels. These programs provide a national effort toward solving environmental problems which are of mounting concern to local health and health-related agencies, particularly in urban centers. The traditional problems in environmental health are more complex and their solutions are more difficult because of rapid technological changes and the constantly increasing congestion of metropolitan areas.

RESEARCH PROGRAMS

The Service is continuing its research and technical assistance on milk, shellfish, and food service sanitation. In accordance with the House committee report, emphasis has been placed within available funds on the cooperative programs for certification of interstate milk and shellfish shippers, and the initiation of important milk and food research studies. Difficult problems are increasing. New commercial food processes are being used in the food industry without sufficient research to scientifically assess possible health hazards. State and local agencies have advised us that they are not able to conduct this research. More active participation of the Public Health Service is needed in a national program to develop basic knowledge and criteria.

SHELLFISH SANITATION RESEARCH

In the shellfish program, we are attempting to meet the critical situation which developed this past year during which we had four disease outbreaks—two major ones—associated with oysters and clams harvested from polluted water. Newly recruited staff members are receiving program training in 1962 (the current year) and our plans for 1963 call for intensification of work in evaluation and improvement of State programs.

Mr. Chairman, we have made progress in carrying out the directive of the House and Senate committees calling for the establishment of two shellfish sanitation research centers. After evaluation of numerous areas, ideal sites on Narragansett Bay and on Mobile Bay were selected and later made available at no cost to the Government. It is anticipated that construction of the new centers will be completed during 1963. These centers will be engaged in shellfish sanitation studies in four technical areas: microbiological, including viral; marine toxin; chemical; and radiological.

FOOD-BORNE DISEASE CASES

The majority of the estimated 1 million food-borne disease cases which occur annually in the United States result from contamination of food in restaurants, school lunchrooms, local catering establishments, and institutions. We feel that current food service sanitation techniques and control are not adequate. Research is needed to develop a more scientific basis for food protection which can be applied effectively by health authorities and by industry.

We have established a basic competence in environmental health aspects of urban planning. Our mission is twofold: First, to conduct field studies to develop basic data required for community environmental standards and criteria; and second, to furnish technical consultation to State and local agencies on more effective use of environmental health people in metropolitan planning and development. Our "Environmental Health Planning Guide" is designed to help in self-evaluation of local problems. It has served as a basis for six pilot field projects to date.

PROBLEMS OF REFUSE COLLECTION AND DISPOSAL

Although over $2 billion is expended annually in the United States for refuse collection and disposal operations, this is one of the most neglected environmental problems—technically speaking. Inadequacies of solid wastes storage, collection, and disposal methods constitute a cause for concern among public officials responsible for the protection of the health of our population. For several years, State and local health authorities, public works agencies, and national professional groups have urged the Service to give more attention to the problems of solid wastes handling. The increase requested will support at least one research project on solid wastes and provide for some specialized field consultation on solid wastes problems at the local level.

INTERSTATE CARRIER INSPECTION

There are approximately 475 major carrier companies, operating some 5,000 conveyances, transporting over 2 million persons interstate daily. The attendant problems of drinking water supply, sewage and waste disposal, and food sanitation require constant surveillance by the Public Health Service to protect the health of passengers and crews. Increased resources appropriated for 1962 were utilized principally to meet the pressing problems in safeguarding and improving the drinking water supplies utilized by the interstate carrier industry. We have also just completed the new Public Health Service drinking water standards—wihch include radioactivity and organic chemical criteria, many of which are toxic or have cancer potential, for the first time. The surveillance of operating conveyances and facilities is at a minimal level.

RESEARCH GRANTS PROGRAM

We are very pleased with the response of the universities to our research grants program. Currently some 165 research projects are receiving support. These projects undoubtedly will contribute much valuable information needed to cope with environmental health problems. However, we have been advised by experts that the amount of research being conducted in the environmental enginering and food protection fields is badly deficient when compared to program problems.

SHORTAGE OF TECHNICAL MANPOWER

Special advisory committees on environmental health have emphasized the critical need for technical manpower and recommended emphasis on training. We propose some additional resident courses at the Sanitary Engineering Center, as well as assistance to States and local agencies in conducting their own training courses.

We will continue to render technical assistance on such other environmental engineering and community sanitation problems as plumbing, individual water supply and sewage disposal systems, institutions and schools—we have just completed a new manual on "Environmental Engineering for the School"—migratory-labor housing camps, and swimming pools and bathing places.

ARCTIC HEALTH RESEARCH CENTER

Included in this request for the first time are funds for the Arctic Health Research Center, the only institution in the Western Hemisphere the primary purpose of which is the scientific investigation of civilian health problems of low-temperature areas. The center is engaged in research programs concerned primarily with the unique problems of healthful living posed by such factors as the weather and permafrost in Arctic and subarctic Alaska. These programs cover both basic and applied research in frontier-like living problems of water supply and waste disposal, infectious diseases, dietary deficiencies, animal-borne diseases, insect control, and the climatic adaptation of man. While none of these areas is new to public health, the environmental context in which they must be considered in Alaska presents them in a relatively unknown setting requiring special research. The increased funds appropriated last year aided the center's efforts in environmental sanitation and epidemiologic studies.

1963 BUDGET SUMMARY

In summary, the total budget request for 1963, $7,502,000, is a net reduction of $338,404 from 1962. An increase of $832,000 is available for research grants to support additional continuations and renewals from 1962. The program increase of $399,596 is for our milk and food programs and provides an increase in solid waste engineering, training activities, and review and approval of research grants. This increase is offset by the $1,570,000 nonrecurring construction costs for the two shellfish sanitation research centers.

Mr. Chairman, I shall be glad to answer any questions the committee may have with regard to these environmental engineering and community sanitation activities. Dr. Colyar, from the Arctic Health Research Center, is here to answer any questions regarding the center.

Mr. FOGARTY. All right, the appropriation for 1962 is $7,424,000, and the request for 1963 is $7,502,000; however, the Arctic Health Research Center has been transferred to this appropriation, so actually the 1963 request is a reduction of $600,000 from the 1962 appropriation, but there are nonrecurring expenses of $1,570,000 in connection with the shellfish laboratories, so the 1963 budget would provide about $970,000 for expansion of other activities. Are these figures right?

Mr. GILBERTSON. Yes, sir.

EFFECT OF RESERVE

Mr. FOGARTY. Now, I see the reserve amounts to 12 positions and $262,000.

Mr. GILBERTSON. That is correct, excluding the Arctic Health Research Laboratory.

Mr. FOGARTY. To what activities was this cut applied?

Mr. GILBERTSON. The activities that were affected in the environmental engineering and food protection activity—that were affected by the reserve—related to operational programs in the amount of $99,000; and the research grants program, in the amount of $163,000.

Dr. ANDERSON. Arctic health was $48,000, Mr. Chairman, in reserve.

Mr. GILBERTSON. That is in addition to the $262,000 reserve.

Mr. FOGARTY. I see.

HISTORY OF 1963 BUDGET

All right, what did you ask the Department for?

Mr. GILBERTSON. In 1963?

Mr. FOGARTY. Supply for the record what you asked the Department for in 1963.

Mr. GILBERTSON. Yes, sir.

Mr. FOGARTY. And what the cut was and give us a breakdown of the cut and what programs will be affected for 1963, and also the same for the Bureau of the Budget cut.

Mr. GILBERTSON. Yes, sir; we will do that.

(The information requested follows:)

The 1963 request to the Department follows:

Milk, food, interstate, and community sanitation

	Request to the Department		Department allowance		Difference		Explanation of reductions
	Positions	Amount	Positions	Amount	Positions	Amount	
Research grants		$5,487,000		$4,596,000		−$891,000	Decrease in amount for new grants.
Research, training, and technical services.	482	7,114,000	345	3,964,000	−137	−3,150,000	
Milk sanitation	71	842,900	69	738,400	−2	−104,500	Reduction in proposed expansion of research on the sanitary quality of milk.
Shellfish sanitation	89	2,586,200	93	1,142,900	+4	−1,443,300	Reduction includes nonrecurring construction costs for the shellfish sanitation research centers and elimination of proposed expansion of the center at Purdy, Wash. (the Department allowance covered the request for annualization for operation of the new centers in 1963).
Food service sanitation	58	575,600	32	373,000	−26	−202,600	Reduction in proposed expansion of research on food control procedures and techniques.
Interstate carrier sanitation	131	1,443,300	73	638,900	−58	−804,400	Elimination of proposed expansion of existing program.
General engineering	30	433,100	25	388,000	−5	−45,100	Reduction in proposed expansion of existing program.
Environmental health planning in metropolitan areas.	68	804,200	30	322,800	−38	−481,400	Reduction in proposed expansion of existing program which included research contracts.
Training	25	255,900	15	200,000	−10	−55,900	Reduction in the number of courses proposed to be held.
Review and approval	10	172,800	8	160,000	−2	−12,800	Includes reduction in payment to NIH management fund and administration of grants.
Subtotal	482	12,601,000	345	8,560,000	−137	−4,041,000	
Arctic Health Research Center	108	1,209,000	67	757,000	−41	−452,000	Reduction in request to expand research activities.
Total	590	13,810,000	412	9,317,000	−178	−4,493,000	

The 1963 request to the Bureau of the Budget follows:

Milk, food, interstate, and community sanitation

	Request to the Bureau of the Budget		Bureau of the Budget allowance		Difference		Explanations of reductions
	Positions	Amount	Positions	Amount	Positions	Amount	
Research grants	------	$4,596,000	------	$3,979,000	------	−$617,000	Decrease in amount for new grants.
Research, training and technical services	345	3,964,000	262	2,841,000	−83	1,123,000	
Milk sanitation	69	738,400	68	725,400	−1	−13,000	Disallowance of annualization and administrative reserve.
Shellfish sanitation	93	1,142,900	52	505,304	−41	−637,596	Disallowance of annualization of shellfish sanitation research centers and administrative reserve.
Food service sanitation	32	373,000	31	362,000	−1	−11,000	Disallowance of annualization and administrative reserve.
Interstate carrier sanitation	73	638,900	73	634,400	------	−4,500	Disallowance of annualization.
General engineering	25	388,000	13	254,900	−12	−133,100	Elimination of plumbing program and reduction in proposed expansion of general engineering program.
Environmental health planning in metropolitan areas.	30	322,800	5	57,800	−25	−265,000	Reduction in expansion of program.
Training	15	200,000	14	181,196	−1	−18,804	Administrative reserve.
Review and approval	8	160,000	6	120,000	−2	−40,000	Reduction in requested increase for administration of grants.
Subtotal	345	8,560,000	262	6,820,000	−83	−1,740,000	
Arctic Health Research Center	67	757,000	60	682,000	−7	−75,000	Administrative reserve and decrease in physiological research program.
Total	412	9,317,000	322	7,502,000	−90	−1,815,000	

RESERVE FOR 1962

Mr. FOGARTY. Was this reserve out of the increases that Congress made in this appropriation?

Mr. GILBERTSON. Yes, sir; it was. Part of the reserve related to research grants—there was an increase in that area. Part of it related to the milk and food item—there were some increases in that area.

Mr. FOGARTY. What did the Congress increase this budget by last year?

Mr. GILBERTSON. I will ask Mr. Bersano to answer it.

Mr. FOGARTY. That is all right.

Mr. BERSANO. The total increase was $2,876,900.

Mr. FOGARTY. Well, the major part of that was the two shellfish laboratories?

Mr. BERSANO. The two shellfish laboratories are included.

Mr. FOGARTY. I do not mean that increase; I am talking about your regular operations.

Mr. BERSANO. $1,056,900, of which the major portion was in the research grant area.

RESEARCH GRANTS

Mr. FOGARTY. Your largest item of increase is $832,000 for research grants, but I notice from page 31 that this will not allow you to finance as many new projects in 1963 as you are financing in 1962. Is that right?

Mr. GILBERTSON. I believe that is correct, sir.

Mr. FOGARTY. Are you not expecting to get as many applications next year as you did this year; is interest going down in this area?

Mr. GILBERTSON. No, as a matter of fact, as I indicated in my statement, the research grant interest has been relatively high in this area, and we do anticipate an increased number of grants.

Mr. FOGARTY. You will not be able to pay them.

Mr. GILBERTSON. Or applications, I should say, during the year.

Mr. FOGARTY. How many approved applications will you be unable to finance in 1962?

Mr. GILBERTSON. I think we have something in the neighborhood of—in terms of the estimated costs—of carryover grants will be about $623,000.

Mr. FOGARTY. Well, put that in the record, the number of grants.

Mr. GILBERTSON. Yes, sir.

Mr. FOGARTY. And type of grants.

Mr. GILBERTSON. Yes, sir.

(The requested information follows:)

Approved applications for new research grants which cannot be financed in 1962

Subject area	November council		March council		Total	
	Number	Amount	Number	Amount	Number	Amount
Food	4	$61,060	9	$310,390	13	$371,450
Milk			3	93,390	3	93,390
Shellfish and marine biology			5	77,820	5	77,820
Private water and sewage			2	16,560	2	16,560
Solid wastes	1	19,690			1	19,690
Environmental physiology	1	16,980	1	27,600	2	44,580
Total	6	97,730	20	525,760	26	623,490

EXPECTED BACKLOG OF RESEARCH GRANT APPLICATIONS

Mr. FOGARTY. In addition to this carryover, how many approvable applications do you expect next year, and how many will you be able to finance?

Mr. GILBERTSON. We expect that the number of recommended but unpaid applications from 1962 to 1963 will be in the neighborhood of about 26, and the number of new applications will be in the neighborhood of 85.

Mr. FOGARTY. Do you have a dollar figure to put in also?

Mr. GILBERTSON. And the cost of the 26 is $623,000, as I mentioned earlier; and the cost of the new applications is $1,850,000.

Mr. FOGARTY. Under the budget for 1963 as you are presenting it now, you will not be able to pay for half of these applications in 1963?

Mr. GILBERTSON. Approximately. That is right, sir.

MILK SANITATION PROGRAM

Mr. FOGARTY. The next largest increase is for milk sanitation—an increase of $144,000 and 12 positions.

Now, would you tell us more about what you refer to on page 33 as, "the disturbing number of rating deficiencies being called to our attention"?

Mr. GILBERTSON. Yes, sir.

Mr. FOGARTY. Is this the main reason for the increase?

Mr. GILBERTSON. The main reason for the requested increase is to strengthen the State programs, the cooperative programs with the States.

As you know, we have had in operation since 1950 the voluntary cooperative interstate milk shipment program, in which some 37 or 38 States are participating. There were approximately, as of January 1 this year, 800 shippers shipping raw and pasteurized milk. Actually, there are now 39 States and the District of Columbia. About 8.3 billion pounds of raw milk and about half a billion pounds of pasteurized milk was moved under this program last year.

Under the program, we are expected to carry out a program of validating State certifications. This is the basis on which the whole thing operates.

The confidence level must be relatively high, and with this growing number of shippers and the growing number of States participating, we have been unable to carry out enough State validations, which include checks on the laboratory facilities, the State personnel carrying out the work, as well as the actual status on the farms and in the pasteurization plants.

Some of these ratings have been as much as 20 to 25 percent off of the certified rating. This is not a general situation. I would like to emphasize that. But we feel that this should be taken into account in strengthening our program.

FOOD SANITATION

Mr. Fogarty. Now, tell us why you feel each of the other program increases mentioned on page 25 is important. Just give us a brief rundown.

Mr. Gilbertson. In the food sanitation area, we know that there are an estimated 1 million foodborne cases of disease every year. As a matter of fact, it still is the largest source of communicable disease left unchecked in the United States. We feel that many of the fundamental practices which are being used are in need of scientific revision in order to improve them.

We have made some progress in this area during the past year. We have developed a new food manual which will now go out to the States for application.

In this area we plan to move into demonstrations and technical consultation with the States, inaugurating the new practices that have been brought out as a result of these studies. We have had a lot of requests for help in this area.

GENERAL ENGINEERING PROGRAM

In the general engineering program, this increase relates to the solid waste problem, which, as you recall, was referred to in the hearings last year. We have had a number of requests from the State and territorial health officers, Conference of State Sanitary Engineers, American Public Works Association, and others, to undertake the program of research and technical assistance. Here, we are dealing with a problem the cost of which is rather a substantial outlay.

For example, I know in my own case in Montgomery County, Md., my bill for refuse service in 1962 will almost equal the combined costs of my water and sewage charges.

So we are paying a rather sizable sum just for throwing away things, besides the housekeeping and health problems involved.

TRAINING PROGRAM

In the training areas, this is to increase the number of training courses being provided at the Sanitary Engineering Center for State and local staffs, for updating in the various areas that we have in our program, and also to provide field courses right out in the locality where these people are employed.

SHELL FISH LABORATORIES

The review and approval of the research grant item is the administrative review related to the research grant administration. And the last item explains the decrease of $1,570,000 for nonrecurring construction costs of the shellfish sanitation research centers.

Mr. FOGARTY. If construction of these two new shellfish research centers was completed in April or May 1963, what would it take to have them in full operation by June 30 of that year?

Mr. GILBERTSON. Well, our estimates for having them in full operation by the end of fiscal 1963 on a minimal basis is about $820,000. This would provide for phasing in certain studies in advance of actual occupation of the laboratory itself.

As was discussed with the committee last year, we had certain urgent activities that should be undertaken and can be undertaken effectively in temporary space provided either at the site of these laboratories or elsewhere.

Mr. FOGARTY. Take, for example, the site in Narragansett. Would you be training personnel there? There are other laboratories right around it.

Mr. GILBERTSON. Yes, sir. We have had an offer by the people in charge of the Rhode Island State University Marine Laboratory there to use, on an interim basis, a portion of their facility to initiate certain of these studies which later must move into the new facility.

We cannot go very far with them, but we could effectively pursue them for the early part of 1963.

Mr. FOGARTY. Would that not be the sensible thing to do to get these people together and get them on the scene and be ready to move in when the building is completed and equipped?

Mr. GILBERTSON. That is what we have contemplated, sir.

Mr. FOGARTY. Will you give us a breakdown of what you need, then, in addition to your budget for 1963, for both laboratories? Will you do that?

Mr. GILBERTSON. Yes, sir; I will do that.

(The requested information follows:)

1963 operation of shellfish sanitation research centers

		Amount in 1963 estimate	Additional needs	Total requirement for 1963
11	Personnel compensation	$79,500	$341,500	$420,000
12	Personnel benefits	15,500	43,300	59,800
21	Travel and transportation of persons	15,000	50,000	65,000
22	Transportation of things	5,000	25,000	30,000
23	Rent, communications, and utilities	6,000	39,000	45,000
24	Printing and reproduction		5,000	5,000
25	Other services	25,000	97,000	122,000
26	Supplies and materials	40,000	15,000	55,000
31	Equipment		18,200	18,200
	Total	186,000	634,000	820,000

The above estimate will provide for the staffing and operation of the two shellfish sanitation research centers to be completed by the end of fiscal year 1963. Key personnel employed in 1962 will be on duty in 1963. The assisting technical staff will be employed and trained at other facilities prior at the opening of the centers. Auxiliary personnel will be hired at the time the facilities are available. The amount requested for personal services is estimated to cover this step-by-step process of having the centers in full operation by the end of 1963.

Other objects of expense provide the travel and moving costs of the personnel trained at other facilities, and other travel required by this program. Supply inventories will be secured and maintained for operation of the centers. The remaining items cover the balance of service operations including contracts for research support and assistance.

Mr. Fogarty. After these research centers are in full operation, what will be the total annual operating costs?

Mr. Gilbertson. Well, based on our present estimates, we believe that the annual operating costs, including personal services and other costs, will be in the neighborhood of $1,700,000 per year.

STATUS OF MILK SANITATION RESEARCH

Mr. Fogarty. This committee has been interested in greater emphasis and greater research on milk problems. How far along are you on this?

Mr. Gilbertson. Well, sir, during the current year we have moved into certain urgent problems to the extent of our available resources.

For example, we have picked one problem. One of the most important health protection factors in the whole milk industry is pasteurization. With new methods of pasteurization, the phosphatase test, which is universally used by the industry and by the health people to check whether pasteurization has actually taken place adequately—this test was no longer accurate. And so during the past year, with the funds made available by this committee, we undertook research in this area and we have worked out a modified test which will give positive and accurate results, even with the faster times and higher temperatures which the pasteurization equipment now provides.

In addition, we have carried out some field studies in 10 States in which we have looked at the problem of how to keep track of the sanitary condition of milk under new farm and commercial practices.

For example, the farm bulk tank has completely revamped the pickup of milk. Even the sampling procedures which were previously used had to be revised in order to meet this problem. The sampling itself would cost—if we followed the old techniques—an inordinate amount of money for States and communities to keep track of the problem.

For example, I understand one Texas city estimated that the sampling alone, exclusive of laboratory costs would have cost them $75,000 a year. Well, through some new methods, we have worked out procedures whereby they can keep track of this without these high costs.

These are some of the specific problems that we went into during the past year.

Now, we have not been able to go into such problems as studies of disease bacteria in milk, or the virus problem.

We have not been able to undertake studies relating to ultrahigh temperature and very rapid pasteurization processes in commercial scale equipment. Here, we are dealing with most split-second timing. This sort of problem we have not been able to undertake yet.

GENERAL ENGINEERING ACTIVITIES

Mr. Fogarty. I notice under general engineering activity, you show a decrease of nine positions, but the justifications refer to—

> an increasing number of requests for assistance from State and local health and public works agencies, and professional organizations.

You are not going to be able to give them much assistance, are you, with your being cut nine positions?

Mr. Gilbertson. Well, part of this is due to a shift of some positions from this line item into the management fund of the Bureau of State Services. This relates to what was called engineering resources in earlier justifications, and has been shifted into the Bureau of State Services' Office of Resource Development. This was 12 positions and is partially offset by the increase of 3 which have been justified for a new program in the general engineering area.

I would agree with the latter part of your statement that it will be difficult to move in on a very broad basis with this size operation.

PLUMBING RESEARCH AND DEVELOPMENT

Mr. Fogarty. Why has not the Public Health Service set up a more adequate plumbing-research program? It is getting to be a real problem, is it not, with all of these communities springing up outside of cities now, especially in places where they do not have any local regulations to speak of?

Mr. Gilbertson. Yes, sir.

We had received a number of requests for assistance in this area. The plumbing aspect itself relates, of course, to other parts of the suburban problem. And specifically on that, we have continued at the same level; namely, $5,000 a year, working with the Technical Coordinating Committee on Code Development. We have not done any work in research in this field, nor have we provided any field assistance to the States, specifically.

Mr. Fogarty. Do you think we should be doing some research?

Mr. Gilbertson. This is a problem area in which we have received requests for doing more work, primarily on the health aspect of the plumbing problem as it relates to such things as cross connections, as it relates to the conservation of water, and as it relates to simpler methods of providing plumbing facilities. It has been shown that diarrheal diseases, infant mortality, can be decreased by simply making plumbing facilities more available to people, particularly inside supply of water for personal cleanliness.

STAFFING AND EQUIPPING SHELL FISH LABORATORIES

Mr. Fogarty. I have a letter here from Mr. David Wallace who has appeared before this committee several times, and I will put it in the record. But he expresses his displeasure over the amount of funds in the bill for the staffing and equipping of the two shellfish laboratories.

I have already asked you whether you had sufficient funds for the equipping of these laboratories; if they are finished by April or May. You are going to furnish that information?

Mr. Gilbertson. Yes, sir, I will.

(The letter from Mr. Wallace and statement regarding equipment follow:)

OYSTER INSTITUTE OF NORTH AMERICA,
Annapolis, Md., January 26, 1962.

Congressman JOHN FOGARTY,
Chairman, Subcommittee on Health, Education, and Welfare,
House of Representatives, Washington, D.C.

DEAR CONGRESSMAN FOGARTY: We are most disappointed to discover that only very limited funds are carried in the President's budget to staff the two shellfish sanitation laboratories for which funds were appropriated by the last Congress. The amount of construction money has been reduced already by administrative action in the Department, so that the facilities in Rhode Island and Alabama cannot be equipped properly at the time of construction. The failure of the new budget to include adequate funds for the technical staff will delay for at least another year the effective operation of the shellfish sanitation facilities.

As you know, the allocation of funds for this project resulted from an emergency situation in shellfish sanitation. While no outbreaks of hepatitis have been linked with shellfish in recent months, scientists at the U.S. Public Health Service Communicable Disease Center predict at least one outbreak before spring. And yet, we no not understand how the virus survives in salt water or how it accumulates in clams. We do not have a technique for cleansing clams suspected of being infected with the virus.

The clam industry of the United States is desperately in need of the research studies contemplated at these laboratories. Since viral studies, for example, require long periods of time, the loss of a year or more before a technical staff can be recruited could be disastrous.

We hope you will have the opportunity to question Mr. Wesley Gilbertson of the Public Health Service when he testifies before your subcommittee on the progress that is being made in getting construction underway, and the funds now available and which will be needed to equip the laboratories and staff them properly.

We wish also to request time to present our views before your subcommittee in support of appropriate funds to staff and equip these laboratories.

Sincerely,

DAVID H. WALLACE, *Director.*

EQUIPMENT FOR THE SHELLFISH SANITATION RESEARCH CENTERS

The $1,570,000 available in 1962 for construction of the two shellfish sanitation research centers provides funds for the fixed laboratory equipment and a minimal amount for other equipment.

In addition to the research activities to be conducted in the laboratories, certain studies must be undertaken in the natural growing water areas where the shellfish normally are found. Marine, oceanographic, and other research equipment must be purchased for investigations which are conducted away from the laboratory. Equipment of this type was not included in construction or operational funds since the need will arise in connection with the development of programs after the centers open in the latter part of fiscal year 1963. The estimated cost of such equipment is approximately $325,000.

RAILROADS' SANITARY FOOD CONFERENCE

Mr. FOGARTY. I notice you had a meeting on railroads' food service that was held in January.

Mr. GILBERTSON. Yes, sir.

Mr. FOGARTY. About 100 railroad officials. Did any good come out of it, do you think?

Mr. GILBERTSON. We believe that this is a proper approach. Here we are dealing with management and supervisory personnel. We know that we have not done an adequate job in this area to achieve the level of sanitation that should be obtained.

This was really more of a training course than a meeting. We had some 31 of the 41 operating companies and nearly a hundred of the superintendents present. The comments that we have received since that time indicated they thought that this was a very worthwhile service provided by the Public Health Service.

Mr. Fogarty. Was anybody from the New Haven Railroad down there?

Mr. Gilbertson. Offhand, I cannot answer that question. I have the record here, and I can supply that for you.

ARCTIC RESEARCH CENTER

Mr. Fogarty. Dr. Colyar, is there anything you would like to say about your activities in Alaska?

Dr. Colyar. I would like to say we have been transferred to the Environmental Group of the Bureau of State Services. This was done in followup of the recommendation by a study committee for reorganization of the Public Health Service, in recognition, I think, of the unique conditions and environmental health problems in Alaska and the need to know something about them, if we are to adapt ourselves to them. I should say also that with the increase which the Congress gave us last year, we have been able to move ahead on two very important problems—one in the field of water supply. This increase has allowed us to start studies on the reservoirs designed to provide method for winter-long storage of water for households, small institutions such as schools, small hospitals, and such, in areas where most surface water is frozen through the wintertime.

Mr. Fogarty. How much increase did you get last year in the budget? The Senate put something in for you people.

Dr. Colyar. $222,000 was the increase appropriated.

RESERVES

Mr. Fogarty. You received an increase of $222,000. How much was put in reserve?

Dr. Colyar. $48,000.

Mr. Fogarty. What did you have available in 1962?

Dr. Colyar. The total in 1962, the net available?

Mr. Fogarty. Yes.

Dr. Colyar. $682,000.

Mr. Fogarty. What are you budgeted for in 1963?

Dr. Colyar. It will be the same amount, $682,000.

Mr. Fogarty. It will be the same. So this is an area where you are not going to get back that reserve, are you, under this budget?

Dr. Colyar. That is right.

Mr. Fogarty. This is another case that we have found where it is not just a reserve for 1962 but it is a permanent cut.

Dr. Colyar. Yes, sir.

Mr. Fogarty. And we went along with this increase of the Senate, because we thought this was a very important activity. And now you are cut back $48,000 because of the reserves that have been established by the Secretary.

Do you think you could effectively use that $48,000 this year if it were released?

Dr. Colyar. This current year?

Mr. FOGARTY. If the funds were released.

Dr. COLYAR. I think that it is possible.

What we did was to eliminate four positions which have to do with establishing additional laboratory facilities.

Mr. FOGARTY. Did we appropriate too much money last year?

Dr. COLYAR. In my opinion, you did not appropriate too much for us to use. The requests have been in excess of that, and the laboratories which we cut out are those which were for a long time needed; a serology laboratory, and one for fluorescent antibody techniques, which is a common, modern method of diagnosis.

AMOUNT OF ORIGINAL BUDGET REQUEST

Mr. FOGARTY. What was asked by the Department this year for the program?

Mr. BERSANO. $1,209,000.

Mr. FOGARTY. $1,209,000. They really gave you a cut, did they not? You only got $682,000.

Mr. Laird.

MILK CERTIFICATION AND RESEARCH

Mr. LAIRD. This committee, during the past 2 years, has directed the Public Health Service to strengthen its activities relating to the voluntary interstate milk certification program and its milk sanitation research work. I understand in the reserves that were made by the Secretary, money was taken away from this program, is that correct?

Mr. GILBERTSON. Yes, sir.

Mr. LAIRD. A few moments ago you testified to the amount of money that was taken away from this program by the action of the Secretary. How much was that?

Mr. GILBERTSON. The total amount that was taken out of the Environmental Engineering and Food Protection was $262,000, of which $163,000 was for grants and $99,000 was for operations. And out of the milk and food item, which included a number of things, about $78,000.

Dr. ANDERSON. Mr. Laird, on that point, we had to decide where the program cut would occur within the total figure of the Department.

Mr. LAIRD. In our commitee report we have stressed this each of the last 2 years; the need to strengthen the interstate milk certification program, and also the milk research work. Can you give us a report on what kind of progress you are making in these two areas?

Mr. GILBERTSON. Yes, sir, I will be very happy to.

I have mentioned earlier, in the course of the hearing, the size of this interstate milk program. It is a major factor now in the movement of milk interstate. There is no question about this.

Mr. LAIRD. We in Wisconsin hope it will become more of a major factor.

Mr. GILBERTSON. We do too, sir.

On the surveillance, during the past year, we moved up from something in the neighborhood of about 70 or 80 check ratings to about 161. This indicates almost a doubling of the actual work that was done in the field.

During the past year we carried out an evaluation of 49 State laboratories for the milk programs.

I would say that at the present time, or by the end of the fiscal 1962, we will be operating at approximately 75 percent of the level that we feel should be carried out in the certification program. This relates primarily to the amount of field work that is required in dealing with the situation in the States. So we have moved up. I would say we have improved considerably since the last discussion we had on this point with the committee.

On the research area, the studies that have gone on with regard to improvement in the tests of phosphatase, I think is a major development in terms of assisting both the industry and the States in carrying out their programs.

On the bulk milk shipment situation, the present practices, of course, were fast becoming obsolete, and as a result of the studies in this area, we have been able to develop new methods that have been useful in dealing with these problems.

We have made one additional study which I should mention, which will precede other work, particularly in the area of very high temperature and very rapid pasteurization processes. We have carried out some studies which relate to the killing of organisms in the very short time—something in the neighborhood of 1 to 3 seconds, where we were going up to around 180 to 190 degrees. Well, these were some of the specific areas in which we have made accomplishments under the funds that have been made available by the committee.

INADEQUATE FACILITIES FOR SELECTED RESEARCH

Mr. Laird. Now, you have spoken of the studies which you have made of the ultrahigh temperature pasteurization process. Do you have any reports of virus studies other than those that you mentioned, and disease organisms?

Mr. Gilbertson. This is a real problem, because we are dealing here with disease bacteria, either organisms like tuberculosis or viral disease organisms and Rickettsia disease organisms.

In this area, we cannot carry out the work in the laboratory facilities which we presently have. It is too dangerous for the people who are doing the research work. And so we have not been able to actually move into these areas.

There is a very definite need here, because not only are we working with pasteurization, which is the ultimate safeguard for an extremely important item in the American diet, and one on which a very large segment of the economy is dependent——

Mr. Laird. It seems to be one that the President has taken an interest in recently, and I cannot understand why he would put on a public display of this interest and at the same time allow the funds to be cut back on this program that is so vital.

Go ahead with your answer. You were making a very interesting statement.

Mr. Gilbertson. So these studies have not been undertaken as yet. They are important, and we feel that we should push forward as soon as we can.

Mr. Laird. Well, what type of research facilities do you have?

Mr. Gilbertson. Well, actually, the kind of facilities that are required here for the disease area consist of specific types of cubicles designed to provide negative air pressures, so that air moving from one part of the laboratory to the other will not spread disease organisms throughout the whole laboratory. It will be necessary to have an animal room where we can hold infected animals after they have been fed infectious materials, and space and facilities to carry out the necessary precautionary measures with reference to cleaning and sterilization of equipment.

This is the specific type of facility that we would need for carrying out the infectious disease studies on a laboratory scale.

We have also given some thought, and in fact, I know the industry is concerned, too, about how this can be translated into commercial-scale equipment. If this is to be done, then some space for commercial-scale equipment of the smaller size—we would not have to go into the big size—would be necessary where we could actually carry out the disease type studies on commercial-scale equipment. But these have to be preceded by laboratory work in order to know what we are dealing with.

PLANS FOR EXPANDED RESEARCH

Mr. **Laird**. What kind of plans do you have for this?

Mr. **Gilbertson**. Well, we have drawn up some plans for a small facility which could be carried out in conjunction with the present setup at Cincinnati.

We had some studies made on this, both by our laboratory people in terms of the functional requirements, and by engineering and architectural people to see what kinds of design we would have to incorporate into this. And so we know that we could carry out this work in conjunction with our other facilities at Cincinnati.

COST AND BUDGET REQUESTS FOR EXPANDED RESEARCH

Mr. **Laird**. How much would the cost of this be?

Mr. **Gilbertson**. I believe the cost for carrying out, getting this work into operation, if it were to be done—did you have in mind by the end of 1963, something like that?

Mr. **Laird**. Yes.

Mr. **Gilbertson**. It would be in the neighborhood of about $218,000 to $220,000, excluding the amount in the estimates.

Mr. **Laird**. Did you request this of the Department?

Mr. **Gilbertson**. We requested in the milk sanitation field a total of $842,900, of which a part was for the research program. I think the certification operation was running at the level of about $240,000 at that time, and we did plan to phase this in, in part at least, during the coming year.

Mr. **Laird**. How much of your request, now, is for research in this area?

Mr. **Gilbertson**. At the present time, the research request here is $40,000.

Mr. **Bersano**. That is the increase.

Mr. **Gilbertson**. For the research in milk?

Mr. **Laird**. In milk research the 1963 budget is $40,000 above the 1962 appropriation level?

Mr. **Gilbertson**. No, sir; above the 1962 level after reserve.

Mr. **Laird**. What was the 1962 appropriation level in the original apportionment of the appropriation?

Mr. Gilbertson. The total amount appropriated in 1962 was $151,000, of which $7,000 was placed in reserve out of this total amount for operations.

Mr. Laird. And your program next year is for how much?

Mr. Gilbertson. The program next year is for $184,000.

Mr. Laird. $184,000?

Mr. Gilbertson. Which is an increase of $40,000.

CHECKS ON RETAIL MILK

Mr. Laird. Do you get into the area of checking milk on the shelf?

Mr. Gilbertson. Retail milk, are you talking about?

Mr. Laird. I realize that most of your checks are in connection with bulk shipments in the interstate area, but I wondered whether you got into the area of checking milk that had moved interstate that was on the shelf?

Mr. Gilbertson. Yes, sir; we do. Because the actual program involves followthrough to the point where it is available to the consumer. This could be either by delivery at the doorstep, in which case the samples are taken from the delivery truck, or taken at the store, where it is picked up off the refrigerator shelf. So that the actual sampling part of the program involves followthrough to the point where it becomes available to the consumer.

Now, of course, the main part of this program, as you know, is carried out by the States themselves, and ours is a spot check to determine how this program is working out.

COOPERATION WITH STATES AND PROGRAM LEVEL

Mr. Laird. You have had pretty good cooperation with the States though?

Mr. Gilbertson. Yes, sir. We have had excellent cooperation. And from the dairy industry, I might say—the dairy industry is an industry which has a great interest in carrying out a high level type of operation. They are very concerned about all kinds of new developments and their health implications.

Mr. Laird. Most of the milk that is produced in our State has to move across our State line. Eighty-two percent of our milk is shipped outside Wisconsin in some form or another. I know that the dairy industry in my State is most interested in cooperating in this program and appreciate the tremendous job that you have been doing in your Division.

My concern is that I think we, perhaps, are not keeping up with this, this year. We went somewhat behind last year, isn't that right?

Mr. Gilbertson. If you are referring to certifications or checks on States, I believe that the level of certification checks was equal or——

Mr. Laird. I am talking about relative to the volume.

Mr. Gilbertson. In terms of volume, I think we are barely keeping even. This is correct.

Now on our State program evaluations, we had 37 participating States in 1961 and 39 as of now, and we did program evaluations in 1961 of 3 States, and in 1962 we expect, by the end of the year, to make 10. We are doing this as well as we can.

However, in terms of volume, and particularly in terms of the agreed-on levels of cooperation, we feel that we are operating at about 75 percent of the required level.

Mr. LAIRD. That is all I have.

Mr. DENTON. Thank you very much, gentlemen.

OCCUPATIONAL HEALTH

TUESDAY, FEBRUARY 6, 1962.

WITNESSES

DR. HAROLD J. MAGNUSON, CHIEF, DIVISION OF OCCUPATIONAL HEALTH

DR. ROBERT J. ANDERSON, DEPUTY CHIEF, BUREAU OF STATE SERVICES

PETER J. BERSANO, FINANCIAL MANAGEMENT OFFICER FOR ENVIRONMENTAL HEALTH PROGRAMS

Object classification

[In thousands of dollars]

	1961 actual	1962 estimate	1963 estimate
11 Personnel compensation:			
Permanent positions	889	1,164	1,224
Positions other than permanent	13	20	35
Other personnel compensation	5	2	2
Total personnel compensation	906	1,186	1,261
12 Personnel benefits	123	147	155
21 Travel and transportation of persons	135	132	136
22 Transportation of things	14	11	12
23 Rent, communications, and utilities	18	18	18
24 Printing and reproduction	6	3	3
25 Other services	107	100	100
Services of other agencies	14	14	14
Research contracts	175	200	249
Payment to—			
Bureau of State Services management fund	50	68	83
National Institutes of Health management fund	18	25	18
26 Supplies and materials	89	109	121
31 Equipment	258	58	67
41 Grants, subsidies, and contributions	1,030	1,783	1,786
Total obligations	2,941	3,853	4,022

Personnel summary

	1961 actual	1962 estimate	1963 estimate
Total number of permanent positions	177	182	192
Full-time equivalent of other positions	2	3	4
Average number of all employees	137	166	176
Number of employees at end of year	165	185	197
Average GS grade	6.4	7.3	7.1
Average GS salary	$5,980	$6,776	$6,798
Average salary of ungraded positions	$4,679	$5,299	$5,299

Program and financing

[In thousands of dollars]

	1961 actual	1962 estimate	1963 estimate
Program by activities:			
1. Research grants	1,030	1,783	1,786
2. Research, training, and technical services	1,905	2,070	2,236
Total program costs [1]	2,935	3,853	4,022
Change in selected resources [2]	6		
Total obligations	2,941	3,853	4,022
Financing:			
Comparative transfers from other accounts	−2,941		
Unobligated balance lapsing		114	
New obligational authority		3,967	4,022
New obligational authority:			
Appropriation		3,981	4,022
Transferred to "Operating expenses, Public Buildings Service", General Services Administration (75 Stat. 353)		−14	
Appropriation (adjusted)		3,967	4,022

[1] Includes capital outlay as follows: 1961, $258,000; 1962, $66,000; 1963, $98,000.

[2] Selected resources as of June 30 are as follows: Unpaid undelivered orders, 1960, $25,000; 1961, $31,000; 1962, $31,000; 1963, $31,000.

GENERAL STATEMENT

Mr. FOGARTY. Now we have the Division of Occupational Health. Go right ahead, Doctor.

Dr. MAGNUSON. Mr. Chairman, with your permission, I shall file with the committee my formal statement regarding the activities of the Division of Occupational Health, and confine my remarks to a few highlights which may be of interest.

(The statement follows:)

STATEMENT BY CHIEF, DIVISION OF OCCUPATIONAL HEALTH, ON "OCCUPATIONAL HEALTH, PUBLIC HEALTH SERVICE"

Mr. Chairman and members of the committee, it is a privilege to present this report on occupational health, which represents a part of the environmental health activities of the Public Health Service.

As American technology develops, the occupational health problems confronting industry increase in complexity as well as number. Occupational health today must not only continue the application of conventional methods for the detection of old and new toxic agents, but must also extend its traditional concept in new dimensions. The problems we face today contain many elements that are new, but our methods of attack have been slow to adapt to the new challenges.

The health of the worker is still far from optimal. Not only does frank occupational disease persist, but other less obvious effects of work on health must also be considered. Residual or slowly developing disease or dysfunction may not be detected by conventional clinical examinations or by conventional reports of disease. Some occupationally induced disease can easily be confounded with so-called normal deterioration, such as in aging. If our workers are to enjoy maximum health during their productive years, followed by an active and rewarding retirement, it is important that we identify and control harmful occupational factors which may contribute to physical deterioration.

There is increasing awareness that impairments now being encountered are not produced by single, isolatable, and easily incriminated factors. Many are the result of multiple factors working together, each adding its own insult and helping others to add theirs. Only tentative beginnings have been made to answering such questions as the effect of high atmospheric pressures or thermal stress on the tolerable limits of toxic chemicals.

Recognition of the interrelationships of various environmental factors has perhaps been most evident in our greater consciousness of the effects of the growing chemical world surrounding us. The constant introduction of new chemicals and the intricate interactions of new processes pose problems of synergistic and additive as well as individual effects.

A BEGINNING IN NEW DEPTH AND DIRECTION

Strengthened by a doubling of its intramural funds in 1961, the Division of Occupational Health has made a substantial beginning in achieving new depth and direction.

A new section on physiology was established during the past year to investigate the effects of industrial conditions and exposures. Studies will include effects on pulmonary functions, fatigue, cellular defense, physical and mental work capacity, and resistance.

A more thorough and persistent consideration of the psychological component of occupational health problems has also been made possible by the recent addition of this competence to the staff.

LABORATORY RESEARCH

In our toxicologic studies, we have probed deeper into subcellular body processes in our search for early indicators of injury. Following several promising leads, we now need to examine further how altered enzyme patterns and metabolic aberrations can signal early progressive biochemical effects of toxic substances. Such information will also be useful in studies of individual susceptibility to specific toxic exposures, and will aid greatly in the diagnosis and control of occupational diseases.

There is also need to assess behavioral reactions in animals as indicators of probable responses to and tolerance for toxic substances. Modern applications of conditioned reflex techniques have been reported on favorably by European investigators and need critical evaluation.

The requested increase will permit more intensified work in the study of biochemical profiles and a start in the evaluation of behavioral reactions.

Findings of several toxicologic studies of the past year found practical application in guidelines for worker health protection. Laboratory study showed that toluene diisocyanate, used extensively in the plastics industry, produced an immunologic response detectable in the blood and in the skin, as well as severe effects on the respiratory tract. Due in part to this research, the American Conference of Governmental Industrial Hygienists has recommended a downward revision of the threshold limit of toluene diisocyanate to 0.02 part per million parts of air. Other toxicologic studies are being directed toward development of acceptable standards of exposure to oil mists. Studies on oxides of nitrogen in the laboratory have supported present standards.

A year ago we reported that disturbances in the metabolism of zinc and copper were implicated in the early stages of carbon disulfide toxicity. Following this lead, a comparative study was made of diets fortified with a metal salt mixture, and diets not so fortified. The metal-fortified diets were found to delay the onset of neural signs of carbon disulfide poisoning in rabbits. Associated with these changes was redistribution of copper and zinc in critical tissues, particularly in the spinal cord of the rabbit. This study points to at least one specific relationship between diet and the response to a toxic agent encountered in industry.

Supportive work continues in analytic research, directed at developing and evaluating new, more sensitive, and reliable methods for detecting and measuring the chemical and physical components of the work environment. The ion exchange procedure developed by the Division for the isolation and concentration of trace quantities of toxic substances has found various applications. Other recent developments in environmental evaluation techniques include comprehensive experimentation with direct reading devices for toxic gases and vapors, the design and construction of a miniature multipurpose recording air analyzer, and the testing of a particle analyzer.

One of our most urgent needs is a critical review of current dust sampling and counting techniques, with preparation of a definitive manual of recommended practices. Work will also get underway on the industrial ventilation design criteria.

EPIDEMIOLOGIC STUDIES

Our resources for field studies last year were largely committed to the silicosis and the uranium mining studies. The field work in the reevaluation of the silicosis problem in the metal mining industry has now been completed, and the extensive data are being analyzed by the Division of Occupational Health and the Bureau of Mines. Fifteen thousand metal miners were examined, representing 57 percent of the underground miner population employed in 1959. Environmental conditions were studied in 60 mines. The findings of this study will form the basis for recommendations as to further research that may be needed in the cause and control of silicosis in American industry.

The Division's investigation of health hazards in uranium mines was strengthened through contracts negotiated with the States of New Mexico and Colorado and with private medical facilities to complement the clinical studies and control efforts. A special research project in which the Division is involved seeks to determine the value of cytologic examinations of sputum in the early detection of lung cancer. Following the conference of Governors called by the U.S. Department of Health, Education, and Welfare in December 1960, considerable progress also has been made by some of the uranium-producing States to reduce excessive radiation levels in the mines. A sharp increase in the number of lung cancer deaths among uranium miners in this past year confirms the severity of the hazard, and points to the need for continued and intensified activity.

A new industrywide study of occupational health hazards was begun in the asbestos products industry, which employs about 20,000 workers. Initially, the study encompasses an examination of mortality records of workers in this industry throughout the country, with a detailed and searching analysis of the mortality experience of asbestos products workers in a selected State.

This epidemiologic technique, using records of the Federal Bureau of Old-Age and Survivors Insurance, will be extended also to other industries, both as a means of obtaining quantitative data on the incidence of suspected occupational disease, and for detecting unidentified hazards in the working environment. Records of the four State disability insurance programs will be similarly analyzed in a proposed cooperative study.

On a broader scale, we plan to undertake a detailed study of mortality data for 1960 to pinpoint areas of the country where there are unusual variations in male-female mortality ratios which might be associated with occupational hazards.

TECHNICAL CONSULTATION AND TRAINING

Since the nurse carries the main burden of occupational health services in industry, the effectiveness of such programs depends to a large extent on the scope and quality of her activities. To help improve the performance of the Nation's 17,000 industrial nurses, the division has undertaken an intensified program of training, research, and consultation in occupational health nursing.

Immediate steps planned for training include a 3-day workshop on "Trends in Occupational Health Nursing Consultation" for occupational health nurse consultants in governmental agencies; and a 5-day course for occupational health nurse supervisors, the first of its kind, to be given jointly with the Loyola University School of Nursing.

Research plans call for a survey of present practices in part-time nursing service to small industries. The findings of such a study will assist in promoting the extension of this service to more industries by a larger number of public health nurse agencies. At present, not even 1 in 10 workers has access to health services at his place of employment. Another proposed study of nursing in an occupational unit will provide a practical basis for assessing the industrial nurse's role and maximum potential contribution.

To strengthen consultation services to State occupational health agencies, a nursing consultant from the division will be assigned to serve two Public Health Service regions as a pilot project. The consultant will assist in the recruitment of personnel and demonstrate the effectiveness of occupational health nursing programs in the States.

Increased emphasis has been placed also on strengthening occupational health programs in State and local government agencies, where direct responsibility lies for helping industry solve its occupational health problems.

As part of this expanded effort, we have undertaken a cooperative occupational health study in Tampa, Fla. This project seeks to assess all official and nonofficial agencies that can assist in improving the health of the industrial worker, and to determine how a local health unit can mobilize these community resources. The techniques developed will be applicable to efforts in other areas.

A new impetus has been given to orientation courses for local health officers. These courses are designed to provide local health officers with a background and understanding of the opportunities for better community health offered by occupational health. To date, four such courses have been held.

Training of other professional personnel has been similarly accelerated. During 1961, 15 separate courses were presented, with a combined attendance of 435 persons.

The appropriation requested will permit a continuation of these expanded efforts.

RESEARCH GRANTS

Fiscal year 1962 was the first year of operation of a program of extramural research grants in the Division of Occupational Health. Appropriate grants previously administered by the National Institutes of Health were transferred to the Division, new grant applications were received, an office with a grants administrator and assistant was established, and a program is developing. The $1,786,000 which will be available in 1963 will permit the financing of continuing and supplemental grants active in 1962 and of $100,000 for new and carryover grants.

There is a great need for research in neglected occupational health areas such as: Occupational dematoses; agricultural health; physiology of work and fatigue; occupational placement of physically and mentally impaired workers; epidemiologic studies of occupational cancer: physical and chemical characterization of the work environment; and biologic effects of physical agents such as heat, cold, and pressure.

Dr. MAGNUSON. The Division of Occupational Health has substantially strengthened its staff in several key areas during the past 2 years, and is now in an improved position to carry out its programs of research, consultation, and training aimed at helping to protect the health of the Nation's 68 million employed workers.

STATISTICAL INFORMATION

One major area of our increased strength is in our statistical competence, which will enable us to obtain a better estimate of the incidence of occupational disease. Concurrent studies are being directed to perfect methods which will point to problem areas and permit sustained evaluation of the impact of changing technology and of environmental control measures on the health of workers.

NEW PHYSIOLOGICAL SECTION

A second major area of improved resources is a newly developed Physiology Section of the highest scientific caliber. Out of this group new insights can be expected into environmental requirements for optimal performance and freedom of workers from undesirable strain or disease. For example, this Section is moving already into researches on the interplay between thermal and chemical stress, in close collaboration with our toxicologists.

HARMFUL EFFECT OF INDUSTRIAL CHEMICALS

The tremendous task of keeping up with the potentially harmful effects of thousands of industrial chemicals is one in which the Division has an important role. We are not a routine testing laboratory. Our research emphasizes the development and evaluation of methods of testing in animals, methods for the early detection of toxic effects in workers, and the development of appropriate standards for the workplace. Our staff of toxicologists, in pursuit of its objectives, has been engaged specifically in studying methods of using serum enzyme patterns as sensitive indicators of toxic effects, in elucidating the mechanisms of action of pulmonary irritants, and in determining the effects of diets upon carbon disulfide toxicity. This year's budget will permit moderate intensification of work in this area and a beginning of research projects in two important areas; the relationship between inherited metabolic disease and suceptibility to toxic agents, and the evaluation of behavioral tests as indicators of harmful potentiality.

LUNG CANCER IN URANIUM MINERS

Our field studies in uranium mines have continued. Lung cancer is occurring among long-term miners at a rate significantly higher than in nonminers, and it appears that the trend previously reported to the committee last year is being confirmed. As a result, measures to improve environmental controls and to provide early detection and treatment of affected miners have been intensified. Fieldwork has been completed in a 3-year study of silicosis in metal mines carried out in cooperation with the Bureau of Mines. Analysis of data on 15,000 miners and 60 mines will provide invaluable facts to guide control efforts and point to areas of needed research.

During the coming year, proposed funds will permit the continuation of the uranium study at its present level and analysis of data in the silicosis study. It is anticipated that new studies will be developed to obtain more definitive information on the long-term effects of asbestos on the 20,000 workers employed in the manufacture of asbestos products. Studies are also planned to determine in a variety of dusty industries the relationships between exposures and the development of chronic pulmonary disease such as chronic bronchitis and obstructive emphysema.

EXPANDED TRAINING

In addition to assisting State and local occupational health agencies with technical assistance and consultation, we have been revitalizing our training program. Consisting principally of short courses, this program has been aimed not only toward specialized competencies in engineering and chemistry, but also toward acquainting local health officers of the opportunities for effective preventive health services in the working population.

RESEARCH GRANTS

Response to a program of research grants specifically for the field of occupational health has indicated that there is a widespread demand for support of needed research in occupational health, some of it in institutions not previously identified with biologic or health investigations. The $1,786,000 which will be available in 1963 will permit the financing of continuing and supplemental grants active in 1962 and of new and carryover grants in the amount of $100,000.

The amount requested for 1963, $4,022,000, will sustain direct operations started in 1962 and will permit an increase of $169,000 primarily for laboratory research and epidemiology.

Mr. Chairman, I shall be glad to answer any questions which you or the other committee members may have concerning the occupational health program or this budget.

Mr. Fogarty. Thank you, Doctor.

ACTIVITIES AFFECTED BY RESERVE

The appropriation for 1962 is $3,981,000, and the request for 1963 is $4,022,000, an increase of $41,000 and nine positions.

The reserve for savings is $114,000. What activities were reduced because of that reserve?

Dr. Magnuson. The reserve as applied to our program amounts to $114,000. Of this, $101,000 came out of our research grants operation and only $13,000 in our direct research operations and one position, which is out of the toxicology program.

Mr. Fogarty. You still think they are important?

Dr. Magnuson. I do.

Mr. Fogarty. If you had this money available, it could be used to good advantage?

Dr. Magnuson. Yes, sir.

RESEARCH GRANTS

Mr. Fogarty. You have three items of increase over what the Secretary and the Bureau of the Budget will let you spend this year. The first one is a real significant one—you have got a $3,000 increase for research grants. Do you think you can solve all your problems with this $3,000?

Dr. Magnuson. Well, at the rate we are going, we will have a carryover of approximately $75,000 this year, and our present estimate is that next year we will probably have about $735,000.

Mr. Fogarty. Do you know what this increase is, percentagewise?

Dr. Magnuson. I am afraid to calculate.

Mr. Fogarty. Two-tenths of 1 percent.

What are you going to do with all this money?

Dr. Magnuson. The $3,000?

Mr. Fogarty. Yes; for research grants. Do you have one that small?

Dr. Magnuson. They average more than that, sir.

Mr. Fogarty. I see. This is not even a grant, then?

GROSS COMMITTEE RESEARCH RECOMMENDATIONS

The Gross committee report, as I understand it, recommended $5 million and you have less than $2 million.

Dr. Magnuson. Yes, sir.

Mr. Fogarty. So you will not even have half what the Gross committee report suggests you should have for 1963; is that right?

Dr. Magnuson. That is right.

Mr. Fogarty. 1962 is the first year the Division has had a grant program; is it not?

Dr. Magnuson. That is correct, sir.

Mr. Fogarty. You are financing 40 new projects in 1962, and just one-tenth as many for 1963; is that right?

Mr. Bersano. Yes, sir.

Mr. Fogarty. Well, that is not progress; is it?

Dr. Magnuson. Not much.

RESEARCH APPLICATIONS

Mr. Fogarty. You will have more approved but unfinanced applications than that carried forward from 1962; will you not? You just gave us that figure. What were the figures again?

Dr. Magnuson. Our figures are we will have an estimated $75,000 approved carryover and by estimating our applications approved in 1963, we are estimating $735,000.

Mr. Fogarty. You not only will have fewer new projects, but the total number you will be supporting will drop from 86 to 73 if this budget is approved.

Dr. Magnuson. That is right.

Mr. Fogarty. How does this fit in with the statement at the bottom of page 53:

> The gap between the level and nature of occupational health hazards and the knowledge and means to deal with them has widened, therefore, and continues to do so at an accelerated rate.

You are going backward unless we can give you some help.

Dr. Magnuson Yes, sir.

EXPANSION OF EPIDEMIOLOGIC STUDIES

Mr. Fogarty. Now, tell us about the need for the increase of $87,000 for expansion of epidemiologic studies and $79,000 for expansion of laboratory research.

Dr. Magnuson. Yes, sir.

Our primary thrust in the laboratory research, sir, is in the area of toxicology, which I have referred to before with this committee. There are a number of really exciting and promising leads in this whole area. The number of new compounds coming in is such, of course, that it is impossible to keep up with them with current testing methods.

But our toxicologists have been working on enzyme changes which, in many instances, enable them to predict when these chemicals are going to give trouble. We have within the past few months actually been able to, I think, prevent what could well be a disaster in a new industry in this country through some very fast, subtle work through using these enzyme changes.

Additional leads are coming from a totally new sector, somewhat unexpected, and this is in the area of genetics, which has been one of the most exciting research fields this past year, and as the knowledge of some of these genetic changes become known, we are able to predict that there are certain people by reason of their genetic inheritance that have got to avoid certain types of occupational exposure. They just cannot handle certain types of chemicals.

So the major thrust of our laboratory research will be to intensify this type of biological study as it relates to toxicology.

Mr. Fogarty. You have no increase for technical assistance to States, but this demand is going up and up; is it not?

Dr. Magnuson. Yes, sir.

HEALTH OF URANIUM MINERS

Mr. Fogarty. Last year you discussed health problems in the mining of uranium ore. I understand the situation has not improved very much. You also said that the uranium mines were extremely dilatory in complying with control measures that were proven to be needed. Has this changed?

Dr. Magnuson. In one respect the situation has continued, and this relates to the deaths that I referred to. The deaths have continued to climb until they are approximately doubled.

Mr. Fogarty. What about the cooperation of the mines themselves?

Dr. Magnuson. I am delighted to say, sir, that we have had considerable increase in our cooperation this past year.

Mr. Fogarty. So there is some improvement, then?

Dr. Magnuson. There is some improvement there.

And there has been some overall improvement in some of the environmental levels in these mines during the past year in three of the States.

FUNDS NECESSARY TO PROTECT WORKERS

Mr. Fogarty. What additional funds do you think would be needed to carry on the necessary research and control measures to protect the health and lives of these workers?

Dr. Magnuson. That, Mr. Chairman, is a difficult question for me to answer. The reason it is difficult for me is, it depends on whether one's research is directed simply at the immediate problem of protecting these workers from this particular hazard or whether one accepts the attitude that has been expressed to us by some of our technical consultants that here we are observing a human experience which has far-reaching implications and that we have a responsibility to the American public to fully capitalize upon all of the opportunities that are available in this particular situation.

Mr. Fogarty. Do you not think we ought to do that?

Dr. Magnuson. It is my own feeling we should.

Mr. Fogarty. How much money do you think you would need for a program in 1963?

Dr. Magnuson. Well, we have had a group of technical advisers working on this problem who came up with a series of proposals here that would roughly come to about $500,000.

Mr. Fogarty. All right, will you put those proposals in the record?

Dr. Magnuson. Yes, sir.

Mr. Fogarty. And who these consultants were, and what their recommendations were?

Dr. Magnuson. Yes, sir.

(The requested information follows:)

It is estimated that $500,000 would be needed to implement the recommendations of the Technical Advisory Committee on Uranium Miners as contained in its report of January 1962, referred to above. The estimated cost of each recommendation follows:

Recommendation 1: Clinical examinations, including special stuides, to obtain early evidence of biologic changes which may be related to enviromental factors, as well as to maintain current information on specific occupations, smoking histories, and other pertinent data needed for cause-and-effect analysis	$218, 000
Recommendation 2: Followup studies on miners who leave employment to determine the state of health of former miners	24, 000
Recommendation 3: Studies of causes of death by life table analysis and more autopsies, to determine whether, and to what degree the mortality experience of uranium miners differs from that of other groups	10, 000
Recommendation 4: Studies of groups of workers in other types of mines for comparison with uranium miners to separate the effects of various occupational exposures and other interactive factors	30, 000
Recommendation 5: Routine and special studies of dust, radiation, and other aspects of the mine environment should be maintained over long periods of time to permit eventual correlation of working conditions and health effects	15, 000
Recommendation 6: Special studies of causal relationships should be undertaken to determine the various radiobiologic problems disclosed in medical and environmental studies	140, 000
Recommendation 7: Whenever suspicious signs are found in miners upon routine examination, provision should be made for more detailed diagnostic studies	63, 000

Review of Uranium Miners Study and Statements of Outstanding Problems, by Technical Advisory Committee on Uranium Miners Study, Division of Occupational Health, January 1962

(U.S. Department of Health, Education, and Welfare, Public Health Service, Bureau of State Services)

I. INTRODUCTION

The Committee is disturbed to learn that funds have not been made available for the program of research into the effects of uranium mining as recommended by the joint task force to the Divisions of Occupational Health and Radiological Health on January 31, 1961.

In spite of the experience obtained elsewhere, notably in Joachimsthal, we still lack the basic data necessary to an expeditious, effective, and economic handling of situations such as those occurring in uranium mining. We cannot, for instance, predict from observed concentrations of radon daughters, the probable effect upon workers in any more than a very crude way, and we cannot be sure that the current "working level" is neither too high nor too low. We know virtually nothing about the modifying effect of concurrent conditions such as silicosis, diesel fumes, or smoking upon the carcinogenic effect of radiation, or the progress of the condition once started. We suspect that the noncarcinogenic but deleterious effects of continued exposure to relatively low radiation levels may be even more important than the frankly carcinogenic, but we have little concrete information on the nature and significance of these effects upon longevity, work efficiency, and resistance to disease in uranium miners. Periods of work in low exposure areas may permit some recovery from the damaging effects of exposure to higher concentrations, but we do not know this for certain, especially where the radiation comes from emitters contained within the body, as is the case with uranium miners.

The PHS, by bringing investigators experienced in occupational, and particularly mining, health problems together with those versed in modern radiological knowledge, has opened the way to filling these gaps in our basic knowledge, and thus to the handling of such problems quickly and efficiently. A pattern of study has been developed and a momentum generated. A world war interrupted the Joachimsthal investigations when they had reached a corresponding point, with the result that a projection could not be made of European experience into the somewhat different American conditions, and we in this country had virtually to treat them as a new situation and acquire basic data all over again. In the opinion of the Committee, it would be very much in the national interest to support, extend, and exploit the studies already made by the PHS, and not to let them lapse for lack of financial support.

II. BACKGROUND

1. History to 1960

The Public Health Service is now in the 12th year of a study of the uranium mining and milling industry in the Colorado Plateau. In 1949 the Colorado State Department of Public Health, the Colorado Industrial Commission, the Colorado Bureau of Mines, and several of the major uranium ore producers requested assistance in appraising the potential health problem in these mines. After a preliminary reconnaissance, the Division of Occupational Health began careful studies in 1950.

Concern for the miners' health arose because of knowledge of experiences in European uranium mines, where the incidence of lung cancer was extraordinarily high. In addition to the other health hazards in metal mines, preliminary environmental studies in Americal mines revealed concentrations of radon greatly in excess of levels believed to be safe for continued inhalation. In 1951 the mean concentration of radon in the mines survey was 5,000 micromicrocuries per liter of air. Cooperative research with the University of Rochester indicated that major concern should be with the particulate daughter products of radon rather than with radon itself, because of the energetic alpha emitters in this series. Research in the mines demonstrated that ventilation would reduce materially the concentrations of radon and its daughter products.

Because of the relatively small number of individuals employed in the uranium mines in 1950 and the small proportion of these with long mining histories, it was apparent that many years would be required before sufficient man-years of exposure and observation would accumulate for definitive conclusions, even if working in American uranium mines increased lung cancer rates severalfold. The program which was developed to meet this situation was as follows:

1. Agreement on a tentative working level for radioactive dust and gas, based on extensive consultation, and taking into account animal studies, and informed estimates of the probable European exposures, and estimates of radiation exposures which had existed in nonuranium mines in this country.
2. Efforts to secure effective control of radon and daughter products in operating mines through cooperative efforts with State agencies and representatives of industry and through a sustained educational program, including the preparation of a monograph on control measures.
3. Efforts to develop data on the mortality experience of other underground workers, such as those in certain metal mines, where prolonged exposures to somewhat lower levels of radioactive dust had occurred many years before extensive operations in uranium mines.
4. Continued surveillance of the uranium mines and miners in the Colorado Plateau, aimed at periodic reappraisal of the environmental situation, and the accumulation and analysis of data for the early detection of trends in the miners' health status and for more definitive establishment of relationships between exposures and health.

Shortly after the beginning of the study in 1950, the Division of Occupational Health organized an advisory committee for the uranium study, consisting of experts in radiation from the Public Health Service, the Atomic Energy Commission, and several universities, together with mining experts from the U.S. Bureau of Mines. This committee met on three occasions between 1950 and 1959, reviewing the progress of the study and making recommendations for further research efforts.

In 1954, because of a reduction in funds appropriated for occupational health and because of the known interest and competence of the National Cancer Institute in the epidemiology of cancer, the Division requested assistance from that Institute. The National Cancer Institute, from 1954 to 1960, shared responsibility with the Division of Occupational Health in the conduct of medical studies, had the major voice in the selection of procedures to be used, had custody of the medical records, and carried out analyses of the medical data.

The medical studies in which the NCI, DOH, and AEC have collaborated since 1954 were designed primarily as long-term studies of the mortality and causes of death of the total uranium-mining population. The population at risk has been established by annual censuses and by triennial physical examinations, and has been set up in such a way that independent analysis of a number of different subpopulations or cohorts can be carried out as desired. The triennial physical examinations have provided opportunities for cross sectional medical appraisal of the mining population using a variety of medical and laboratory procedures, and have served to make the miners interested in and responsive to followup inquiries when they leave the mining industry. In both the 1957 and 1960 examinations small populations of nonuranium miners have been included as controls.

2. Governors' conference

The then Secretary of Health, Education, and Welfare, Mr. Arthur S. Flemming, invited the Governors of the States of Arizona, Colorado, Montana, New Mexico, Oregon, South Dakota, Utah, and Wyoming to a Governors' Conference on Health Hazards in Uranium Mines in Denver, Colo., on December 16, 1960, for a threefold purpose:

(*a*) To present certain recently acquired data on the health of the uranium miners which is causing some concern to Public Health Service officials;

(*b*) To present some up-to-date information on the experience of the Bureau of Mines and the Atomic Energy Commission in controlling radiation hazards in uranium mines;

(*c*) To try to work out, collaboratively and cooperatively with the several States involved, a program that would effectively improve the health conditions in the uranium mines, and which would prevent the extension and development of serious health problems.

The proceedings of this conference were published in a document for limited distribution early in 1961.

3. Joint task force

At the request of the Deputy Chief, Bureau of State Services, the Chiefs of the Divisions of Occupational Health and Radiological Health appointed a joint task force in November 1960 to examine and report:

(*a*) What types of health and radiobiological information should be obtained from the study of uranimum miners, including both those in the current NCI–DOH project and those in the New Mexico group not included in the project;

(*b*) If the present methods of study are inadequate to obtain this information, what changes or additions to the study should be made;

(*c*) What competencies and resources would be required to obtain such information.

(*d*) Where, in the Public Health Service, such competencies and resources lie.

The task force tendered its report on January 31, 1961, in three sections: A. Outline of Definitive Study; B. Current Activities and Recommended Activities; and C. Resource Requirements and Location. The headings and subheadings used in that report will be followed in later sections of this review.

4. DOH assignment and organization

On February 28, 1961, the Deputy Chief, Bureau of State Services, determined that the conduct of the uranimum miner study and the promotion of control measures would be the responsibility of the Division of Occupational Health. The two aspects mentioned were assigned to different segments of the Division. The uranium miners study, dealing with the research aspects of the problem, such as the biological effects of uranium mining, the nature and operation of the responsible environmental conditions, and diagnostic methods, was assigned to the Research and Technical Services Branch; and the uranium mines control program, working with and through the States, was assigned to the State Services Branch. The occupational health field station at Salt Lake City serves as the chief operational unit in both programs.

5. Technical Advisory Committee on the Uranium Miners Study

A Technical Advisory Committee on the Uranium Miners Study (TACUMS), comprising representatives of the National Cancer Institute, Division of Radiological Health, Atomic Energy Commission (Division of Biological Medicine) and Department of the Interior (Bureau of Mines), together with three consultants, was established to advise the research and Technical Services Branch Chief on technical aspects of the study.

The first meeting of the Committee, held in Washington April 20–21, 1961, reviewed the report of the joint task force and made recommendations on the implementation of the more urgent items therein.

At its second meeting, held in Washington on July 20, 1961, the Committee gave particular attention to the determination of causal relationships between environmental conditions and the biological status of miners, and made recommendations for the orderly prosecution of this difficult problem.

The third meeting, held in Moab, Utah, on November 27–29, 1961, developed the basic material to be included in this review, discussed practical implications of its work with representatives of the Utah Mining Association, and examined actual mining operations in two neighboring mines.

III. PRESENT STATUS OF THE URANIUM MINERS STUDY

In this and the next succeeding section, the review will follow the relevant major headings and subheadings employed in the report of the joint task force.

1. *Determination of the biological status of the miners*

(*a*) *Repeated examinations of active miners.*—Medical surveys were conducted in 1950, 1951, 1953, 1954, 1957, and 1960. The medical examination included a limited occupational and medical history, general physical examination, general examination of the urine, radiograph of the chest, some measurements of pulmonary function, and general blood morphology.

The data obtained in the 1957 survey were transferred to punchcards and have been subjected to extensive analysis by NCI. Up to fifth-order correlations have been calculated between selected environmental factors and various aspects of biological function. Finalization of this study, however, is proceeding only slowly.

The data obtained in the 1960 survey have been transferred to punchcards. Arrangements have been made for the immediate abstraction of essential data, and the establishment of low-order correlations between selected environmental factors and biological reactions. A duplicate set of punchcards will be furnished to NCI for a more extensive analysis in parallel with that being made of the 1957 data. No date can be given for the completion of the more detailed analysis.

Hairlocks obtained in the 1957 survey were examined for dysplasia, as a possible indication of external beta effects, but the results were inconclusive.

Nails were obtained in the 1960 survey and examined for changes in cystine content. Some evidence was obtained of a correlation between length of exposure and reduction of cystine content. The possible relationship of lowered cystine content to carcinoma is being examined in another connection.

Counts of binucleated lymphocytes in blood smears obtained in the 1957 and 1960 surveys have been made in a preliminary way, but completion of this examination awaits the development of a counter.

Sputum samples collected in the 1957 and 1960 surveys have been examined for exfoliative pathology. The final significance of the findings cannot be decided until certain technical and interpretive difficulties have been resolved, hopefully in the near future following a conference between the pathologists concerned and national leaders in this field, scheduled for early February 1962.

Contract arrangements have been made for the examination of sputum samples collected in 1961 from the Colorado Plateau miners without other medical examination, on the Eastern Slope miners, and on the New Mexico miners.

Medical data on approximately 100 miners on the Eastern Slope region of Colorado obtained under contract arrangement have been received. This is too small a sample to be considered statistically, but the data will be used in attempted case finding.

Medical data have been collected under contract arrangements on some 500 New Mexico miners to date, but have not yet been received from the contractor. About 2,500 more examinations have yet to be made.

(*b*) *Followup on miners who cease reporting for examination and supplementary census of miners.*—Of the 3,317 men in the study group at the end of 1959, the whereabouts of all but 76 (or 97.7 percent) was ascertained at some time during the period June 1, 1960, to August 31, 1961. About 2,000 miners in the Colorado Plateau have been added to the study group since then, and followup is continuing, but the completeness of location of the additional people will not be known until the middle of 1962. The medical condition of those who were not examined in the 1960 survey is known only to the extent that it is revealed by answers to a questionnaire circulated at the end of 1960. The response to this questionnaire was approximately 60 percent. Of those responding, 23 percent listed some health complaint. Of those with health complaints, 21 percent had chest problems, 10 percent had back trouble, and 5 percent reported surgery for cancer. Other health problems reported frequently were peptic ulcers, heart trouble, arthritis, visual disturbances (other than refractive), and "poor health." The cancers mentioned were two of bladder, one of rectum, three of lungs, six of skin, and one of prostate. Another questionnaire was sent out in December 1961 to all men in the study groups not located in 1961 census. No arrangements have been made for medical examination of men who have left the industry. Followup procedures have not yet been instituted for miners of the New Mexico and Eastern Slope regions.

(*c*) *Review of causes of death of miners.*—From the followup procedures described above, the medical progress of 5,347 men has been followed. Of these, 231 have died of various causes, as indicated in the following table. The deaths among a subgroup of 907 men who had spent 3 or more years underground in uranium mines as of 1957 are also listed in the table.

Table of deaths by cause

Cause of death	Number of deaths—	
	Among 5,374 men in study group	Among 907 men with 3 or more years under[ground in] uranium mines
Tuberculosis and silicosis	4	2
Pneumonia and infections other than TB	3	3
Respiratory cancer	12	9
Other malignant disease	12	4
Arteriosclerotic cardiovascular respiratory disease	54	22
Other cardiovascular disease	11	7
Nonwork motor vehicle accidents	31	3
Work accidents (including some motor vehicles)	43	9
Miscellaneous nonwork accidents	16	5
Suicide	5	1
Other	8	1
Cause not known at this time	32	4
Total	231	70

Death certificates are obtained on practically all deceased uranium miners, but autopsies on only one-quarter. Arrangements are being continued for the step-sectioning of lungs and other tissues from practically all of the autopsies, together with some controls. Some 35 cases have already been examined, and some interesting pathology discovered, but no comparison with occupational history will be attempted until a larger series has been completed. It is anticipated that in fiscal year 1962 sectioning will be done on the lungs of 30 uranium miners, 20 nonuranium miners, and 10 nonminers, irrespective of cause of death. Attempts have not been made to increase the autopsy percentage, largely because it does not appear feasible at present to deal with a larger sectioning load.

(*d*) *Examination of check groups.*—Data collected on 295 coal miners from Dragerton, Utah, in 1960 are being analyzed. Nothing has yet been done about following the causes of death of men in this group.

Potash miners at Carlsbad, N. Mex., are being given an abbreviated examination as part of contract arrangements with the New Mexico Department of Health. This includes an abbreviated occupational history, sputum examination, and radiograph. It is probable that an application will be made for a research grant to follow the mortality records of these men. At one time this summer, there were 1,512 underground miners and 1,988 surface workers engaged in potash mining and processing near Carlsbad, N. Mex. In a mortality study, by using records over a period of years, a group of underground workers considerably greater than 1,500 could probably be assembled.

No further action has been taken to use the metal miners or the Montana miners as check groups.

Eight hundred uranium millworkers are now included in the study group for items (*b*) and (*c*) above. They were given a medical examination by PHS in 1950, 1951, or 1953, but not since. There have not been any followup procedures.

2. *Determination of environmental conditions*

The report of the joint task force, issued on January 31, 1961, stated:

"At present, routine environmental data are collected primarily by State agencies and mining companies, and consist almost entirely of measurements of radon daughter concentrations, which are taken to evaluate the effectiveness of control programs or to determine compliance with regulations.

"The results of these samples are filed at the OHFS in Salt Lake City. Over 5,000 radon daughter samples taken in 675 mines are thus recorded. The data taken for special projects are also available at Salt Lake City."

Since that time sampling has been much more actively undertaken in the States of Colorado, Utah, and New Mexico, and the sampling sites more closely related to the actual locations occupied by the miners. In Colorado a man-file is maintained by the State mine inspector's office relating sampling results to the men working in that location. In New Mexico the man-shift method is used for estimating probable exposure. In Utah, the Bureau of Mines has assisted the State in inspections. Estimations are being made of full-shift exposures, and a man-file will probably be set up by the Industrial Commission similar to that now used in Colorado.

There has been little systematic effort to collect the additional environmental information recommended in the report of the joint task force, such as intensity of gamma radiation, concentration of hydrocarbons and other noxious gases in the air, temperature and humidity conditions, and noise.

3. *Determination of causal relationships between environmental conditions and biological status of miners*

In the absence of supporting funds, very little work has been initiated on this important aspect of the study. Applications for research grants are contemplated in certain areas, such as the excretion of Pb210 and Po210 in the urine, and studies of pulmonary function. It is understood that the Kerr-McGee Co. is supporting work on the development of dosimeters, and also considering experimental studies on selective retention of radium A by the bronchial tree. Four mules and one horse owned by Union Carbide Nuclear will be subjected to autopsy and detailed lung examination in parallel with the examinations of miners' lungs. On the other hand, the studies of urinary excretion of radon derivatives previously conducted by Dr. Black will cease with the reassignment of that officer.

4. *Positive action*

(*a*) *Intensive medical investigation of miners showing significant findings on routine examination.*—Forty-two, or about one-half of the miners who showed suspicious cytology in the 1960 survey, have been given a thorough clinical examination, including bronchoscopy. Evidence of bronchial carcinoma was found in only one of these, and he already had radiologic indications of the condition. The remainder will be examined in the near future.

(*b*) *Research on control methods.*—No further work has been initiated.

IV. FURTHER ACTION NEEDED

1. *General*

When the uranium miners study was first contemplated in 1949, it was known that lung cancer had occurred with alarming frequency in European uranium miners, and it was hoped that more modern mining practices in this country would result in a lower hazard to the miners. But little was known of the concentration of radioactive elements that would be encountered, the extent and nature of the population that would be involved, the types of ore or rock that would be worked, or the various nonradiative environmental factors that may develop.

It was decided, therefore, to make a two-pronged investigation which would reveal the nature and intensity of the radiative factors in the mining environment on the one hand, and define the identity and follow the health of the miners on the other. As experience was gained and knowledge developed, the original program underwent some modification to sharpen its attack, and some fresh probes were added. The shifting of relative responsibility for the program between the Division of Occupational Health, the National Cancer Institute, and the Atomic Energy Commission also resulted in some changes of emphasis over the period.

Careful examination shows that all of the past inquiries were pertinent, that much of the information obtained has already proved useful, and that data now in the process of consolidation promise to throw important light on the nature of the biological reaction to the prevailing conditions. Nevertheless, the committee feels that this is the appropriate time to recommend certain modifications in the investigative procedures for the future.

The recommended modifications are along four general lines:

(*a*) The partial substitution of special intensive medical examinations, particularly directed to promising indices of biological reaction to the environment, for the more general and routine type of examination hitherto conducted.

(*b*) Focusing of attention on the wider spectrum of tissue reaction to radiative and other environmental influences, rather than on the specific reaction of lung cancer.

(*c*) Increased attention to the study of control groups, whose health and biological status can be compared with those of uranium miners.

(*d*) Closer relationships with radiobiologists whose more basic studies might yield applications for the more specific problems of uranium miners.

Detailed recommendations follow in respect of the individual headings and subheadings used in the previous section of this review and in the report of the joint task force. (Notations in parentheses indicate appropriate sections.)

1. *Repeated medical examinations* (*1.a*).—If a general examination is to be given to all miners, it could well be confined to a good occupational history, including mine identification, careful history of smoking and exposure to other potentially carcinogenic influences, sputum cytology, and such clinical characteristics as detailed analysis of the 1957 and 1960 surveys reveal as being useful indexes of biological response to radiation.

It is most important that analysis of the data gathered in the 1957 and 1960 medical surveys be completed at a very early date, to reveal whether any of the items included in the survey offer possibilities of aiding early diagnosis of lung cancer or of other deleterious effects of the environment.

As evidence develops, whether as part of this study or elsewhere, that a particular biological characteristic may be a useful index of deteriorative reaction to radiation, it should be intensively studied and evaluated on a selected group of miners. If and when it proves a useful diagnostic procedure, it could then be incorporated in a more general examination.

Examples of such special studies, some of which have already been examined in a preliminary fashion, are: Significance of binucleated lymphocytes, dysplastic hair roots, cystine content of nails, blood enzyme profiles, gamma globulin levels, sedimentation rate, and changes in pulmonary function. Others will no doubt develop as research progresses; early indicators of radiative effects are certainly needed.

3. *Followup on miners who leave employment* (*1.b*).—The procedures now in force should be continued, but inasmuch as sickness may be the reason for a miner leaving employment, it is highly desirable that information be obtained on the medical status of former employees. The questionnaire, if repeated, would do something to meet this need, but it would be better if medical examinations could be arranged as suggested by the joint task force.

4. *Causes of death* (*1.c*).—It is desirable that the life table analyses be brought up to date annually, and that ways be explored of substantially increasing the proportion of autopsies obtained on deceased miners, even though it may not be feasible to send all of the lungs for detailed sectioning. Some ways in which the autopsy percentage may be increased have been suggested by the joint task force. The committee makes the additional suggestions: (*a*) That State authorities request coroner's inquiries on all deaths of miners, and that an autopsy be made a necessary part of a claim for death compensation; and (*b*) that a medical officer, actively participating in the study, be available from some central location to assist local practitioners in the conduct of autopsies, and at the same time develop their interest in the study.

5. *Check groups* (*1.d*).—In a situation where several interactive factors are confounded, it is important to have parallel studies on control groups where the factors appear in better isolation or in substantially different combinations. Unfortunately, no ideal control appears to be available; so that the best use must be made of the several less ideal groups that do exist. The studies already started on the Dragerton coal miners and the Carlsbad potash miners should cer-

tainly be continued. Further efforts should be made to use the information already gathered on the nonuranium metal miners. The recommendation is again made that a 1960 cohort be set up on the Montana copper miners, with new objectives related to this study.

The committee also recommends that the possibility of obtaining useful comparative information be explored with south African and Canadian authorities responsible for studies on miners in those countries.

6. *Determination of environmental conditions* (*2*).—A reliable estimate of actual exposure is essential to any evaluation of environmental effects. Unfortunately, most of the environmental information collected in the past is only indirectly related to the actual working exposure of the miner, and the actual location of the miners has often been at the mercy of unreliable memory. Both the increased sampling for radon daughters and the recordkeeping now being introduced will greatly improve this picture for the future, and should be prosecuted with vigor. The committee strongly supports this development.

It would urge considerably more attention, however, to the observation and recording of significant nonradiative conditions, such as the presence and concentration of diesel fumes, temperature, and humidity at the working place, and nature and concentration of dust especially as regards silica and metals.

7. *Causal relationships* (*3*).—A program of long-term, imaginative research is badly needed in this area. Examples given in the report of the joint task force may be repeated here:

Effect of ventilation rate on the radiation intensity of air in the working place of an ore body of given composition.

Factors determining the retention in the human body of airborne radiation, such as the nature of the air particle, respiratory activity, humidity, smoking, air filters.

Distribution of retained radioactive material in the body and its elimination therefrom.

Detailed estimates of the absorbed dose of ionizing radiation.

Factors affecting the carcinogenic effect of retained radioactive material, such as smoking, exposure to other carcinogens, age, nutrition, general stress, pneumoconiosis.

Noncarcinogenic or precarcinogenic effects of retained radioactive material, such as aging, changes in enzyme patterns, changes in blood morphology, and the effect of other environmental and personal factors thereon.

Establishment of a series of indexes, of increasing reliability as information develops, permitting estimation of probable biological effects from environmental data. Of particular importance in this connection is determination of the maximum exposure which, over a normal working life, would be expected not to affect the incidence of disease significantly.

Such a program would not operate in isolation. In various academic and governmental laboratories intensive research in radiobiology is already being carried out. For the most part, however, this current research is not specifically directed to the problems enumerated above, although it could well contribute ideas and inspiration if proper relationships were established.

The Committee recommends, therefore, that a specific program of research be implemented in this area, and as rapidly as possible, to utilize existing industrial opportunities, but in such a way that full use is made of relevant national activities without unnecessary duplication. Specifically, it recommends that DOH exercise its traditional role of providing leadership in this multifaceted problem, and of keeping the inquiry focused on the solution of practical problems; but that it use intraservice arrangements, contracts, and research grants to supplement existing activities, and set up new inhouse activities only to the extent that they are necessary to carry out aspects not being adequately prosecuted elsewhere.

8. *Intensive medical examination of miners with significant signs* (*4.a*).—The current program is very desirable, and should certainly be continued for all miners on whom more routine studies reveal suspicious signs.

V. SUMMARY

The Technical Advisory Committee on the Uranium Miners Study is disturbed to learn that funds have not been made available for the proposed program of research into the effects of uranium mining upon the workers, and considers that both the short-term and the long-term national interests require that such a study should be implemented.

The committee considers that the plan of study set out in the report of the joint task force, dated January 31, 1961, provides a sound basis for future action. It would, however, recommend certain changes in emphasis:

(*a*) The partical substitution of special intensive medical examinations, directed to promising indexes of biological reaction to the environment, for the more general and routine type of examination hitherto conducted.

(*b*) Focussing of attention on the wider spectrum of tissue reaction to radiative and other environmental influences, rather than on the specific reaction of lung cancer.

(*c*) Increased attention to the study of control groups, whose health and biological status can be studied in parallel with those of uranium miners.

(*d*) Closer relationships with radiobiologists whose more basic studies might yield applications for the more specific problems of uranium miners.

On specific sections of that report it makes the following recommendations:

Repeated medical examinations (1. a). Rapid completion of analysis of results from 1957 and 1960 surveys. Condensed general examinations, with more attention to special examinations centered around signs which may give early indications of biological response to radiative and other pertinent environmental factors. Improved occupational histories.

Followup on miners who leave employment (1. b). Continue, but improve information on medical status of men.

Causes of death (1. c). Introduce measures to increase proportion of autopsies obtained. Continue histological studies at least at projected level.

Check groups (1. d). Increase efforts to use information from cited groups. Explore possibilities of obtaining useful information from South African and Canadian experience.

Determination of environmental conditions (2). Continue present intensive program and extend to other areas. Record information in ways which will permit estimate of probable exposure of individual miners. Add relevant nonradiative factors.

Causal relationships (3). Institute long-term, imaginative, coordinated program of research, which will stimulate application of knowledge, wherever it arises, to an understanding of the essential relationships between exposure to uranium mine environments and biological effects in miners. DOH to take leadership in the applied program, and depend primarily upon intraservice arrangements, contracts, and research grants as far as possible for supplementing existing activities across the Nation, with additional inhouse studies to the extent that needs are not otherwise met.

Intensive medical examination of miners with significant signs (4. a). Continue present program.

On behalf of the committee,

DOUGLAS H. K. LEE, *Chairman.*

JANUARY 17, 1962.

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ALTERNATES

Mr. L. B. Berger, Chief, Division of Accident Prevention and Health, Bureau of Mines, Department of Interior, Washington, D.C.

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CHEMICAL TOXICITY PROGRAM

Mr. FOGARTY. We hear about the rapidly increasing number of chemicals being introduced into industry. What hope do you see of being able to keep pace with this?

Dr. MAGNUSON. Well, to the extent that we can develop these new tests that are not dependent upon sitting around and measuring the death of experimental animals and what not that are being tested—may I go off the record here, sir?

Mr. FOGARTY. Surely.

(Discussion off the record.)

Mr. FOGARTY. Give us a couple examples about the importance of going forward in this area and doing more than we are doing.

Dr. MAGNUSON. Mr. Chairman, the hope we have here is in measuring, within the bloodstream, changes that occur in the enzymes, which are the workaday chemicals in the body. And we know that some industrial chemicals make very subtle changes in these enzyme patterns. We have been able to demonstrate it with carbon disulfide. We have been able to demonstrate it with vanadium and some of the other metals that we have been working with.

Mr. FOGARTY. Give me an example in words that I can understand so that, if I am asked to give an example I can do it in a layman's language.

I know it is sometimes difficult for you people to do that, but I do not follow you when you are talking about some of these things.

Dr. MAGNUSON. One of the kinds of examples that I am talking about, which is a related kind of problem—it gets over in this genetics thing that I was talking about—we know that certain chemicals affect a specific enzyme. The one I am talking about right now has a great big, long name—glucose-6-phosphate-dehydrogenase.

Mr. FOGARTY. Have they an abbreviated name for it?

Dr. MAGNUSON. Bob, do you know the abbreviated name for that?

Dr. ANDERSON. I sure do not.

Dr. MAGNUSON. But, at any rate, we know that there are certain people that are lacking in this kind of enzyme, and that we know that the people that are lacking in this kind of enzyme have to avoid exposure to certain chemicals. If they do not have this enzyme, they cannot handle the chemical. It is a situation very similar to some of the work that is going on over at the NIH in these children where they have demonstrated enzyme defects and where the child cannot take certain kinds of sugars, for example. The child starts off normally and becomes, you know, mentally retarded——

Mr. **Fogarty.** Well, they have an abbreviation for it—PKU.

Dr. **Magnuson.** Now the situation that we are beginning to recognize here is that this same thing applies in some of our industrial kind of exposures. There are certain people who are lacking certain of these chemicals in their bloodstream that will enable them to handle these kind of toxic insults.

Mr. **Fogarty.** You have a long way to go in this area, do you not?

Dr. **Magnuson.** I believe we do, sir. We are just getting started.

NEW METHODS IN EVALUATING POSSIBLE TOXICITY

Dr. **Anderson.** I think, Mr. Fogarty, what he is saying is that the older methods of evaluating chemicals and substances that are used in industrial processes are very expensive; they take a long time to get results and the evaluation of the possible toxic effects.

We are beginning to get, in a few areas, now, simple tests which can rapidly be used to screen out possible dangerous substances and also to screen out individuals who might react to those substances differently than the normal person.

Mr. **Fogarty.** For the record, add two or three other examples.

Dr. **Magnuson.** We will supply them.

(The information requested follows:)

Examples of Enzymes Interference in Relationship to Toxicity Problems

Great advances have been made in recent years in our understanding of the ways in which the biochemical processes of the body are controlled. Genes, passed from generation to generation, determine the structure of enzymes, which in turn govern the nature and speed of the myriad chemical reactions necessary for growth and health. Each living cell contains many, often thousands, of different enzymes; most govern intracellular reactions but some may be released in the cell's secretions, such as those of the digestive system, where they serve in the digestion and assimilation of foods, and others may enter the bloodstream to control chemical reactions taking place there. In recent years the concept of the genetic determination of enzyme structure has led to the demonstration that inherited absence or deficiency of certain enzymes is more common than once realized. Some defects are very serious; others produce no symptoms unless there is an environmental stress.

Occupational health has been able to profit by some of these exciting advances. An interesting example is that of a severe anemia that sometimes results from drugs and chemicals. A dramatic byproduct of the studies of antimalarial drugs begun during World War II was the discovery that the absence of an enzyme, glucose-6-phosphate dehydrogenase, in the red blood cells of occasional individuals made them liable to a severe and often fatal anemia if they took the antimalarial drug primaquine. It was later found that this enzyme defect explained idiosyncrasies to other drugs and to the industrial chemical naphthalene. There is need to protect individuals with this abnormality from contact with or ingestion of chemicals known to produce destruction of red blood cells until one is sure no relationship exists.

Another example of an inherited metabolic deficiency with occupational health implications is thalassemia, an abnormality in the formation of hemoglobin, which is common in many populations of Mediterranean and Asian origin. Individuals with this defect should not be subjected to exposures to lead and benzol.

Similarly the rare individual with an inherited disturbance in the enzyme cholinesterase needs protection from cholinesterase-inhibiting chemicals such as the organic phosphates insecticides.

Alteration in the enzyme activity of body tissues or fluids can result from direct or indirect interference by a chemical with the enzyme's activity or from the release of enzymes into the blood by the destruction of cells, such as liver cells. Changes can sometimes be shown before there is any evidence of illness and in the case of solvents like carbon tetrachloride, such tests offer promise of early detection of overexposure before irreversible harm has been done. It may eventually be possible to monitor and detect breakdowns in engineering controls by such biologic tests.

Sophisticated studies in the laboratory of the mechanisms of toxic action must of necessity look into effects on selected enzyme systems, and the possibility of their use in the prediction, detection, or modification of toxic effects. Eventually enzyme activity tests will permit more rapid and effective screening of potentially toxic materials. In our own laboratories in recent years we have pursued a number of such studies. For example, the inhalation of pulmonary oxidants such as ozone has been found to lead to diminished glutathione and lower activity of the enzyme succinic dehydrogenase. Studies of carbon disulfide have shown that its toxicity probably depends upon the formation of substances which join with metals normally in the body such as copper, zinc, and magnesium and prevent them from activating certain indispensable enzymes. Studies of vanadium suggest that it interferes with the metabolism of sulfur-containing amino acids; this results in a reduction of cystine in the hair of experimental animals and in the fingernails of exposed workers. Vanadium also has been found to have a significant effect in reducing blood cholesterol in experimental animals, a finding subsequently confirmed in vanadium workers.

In summary, we appear to be at the threshold of a variety of applications in occupational health of knowledge and techniques developed in the rapidly advancing field of biochemistry, and conversely should be prepared to study occupational groups in the hope of obtaining meaningful leads for the biochemist.

Mr. Fogarty. Mr. Denton.

DESCRIPTION OF AN ENZYME

Mr. Denton. Just what is an enzyme?

Dr. Magnuson. An enzyme?

Mr. Denton. Yes.

Dr. Magnuson. Well, Bob, help me out.

Dr. Anderson. Well, the subject we were just talking about here with regard to the pasteurization of milk is an example. There is an enzyme in milk called phosphatase, which, when it is present, helps the body assimilate phosphatases. It is a kind of a partner that facilitates such a chemical reaction. In the previous example the old pasteurization process destroyed this enzyme, not because this was the purpose of pasteurization, but it happened secondarily to the pasteurization process.

Now, when they changed to this short-time, high-temperature pasteurization process, there was not sufficient heat to destroy that enzyme, and consequently the old test to determine whether pasteurization had occurred revealed that there was still phosphatase present.

There are enzymes in our saliva, in our stomach juices, in our intestinal juices, that help the body do various processes of digestion and assimilation.

Mr. Denton. Are they chemicals?

Dr. Magnuson. Very complex chemicals.

I have been trying to get an analogy. Perhaps I have got it, Mr. Denton. These are chemicals which assist in these reactions, but in assisting in the reactions, are not themselves destroyed.

For example, if we were to go out here to the foot of the stairs and I were to help someone up those stairs and come back down, I would have been an enzyme in getting this reaction done; I would not have been used up myself. But I would have carried on the processes.

Mr. DENTON. Are they produced by glands?

Dr. MAGNUSON. They are produced all over the body in all kinds of tissues—in the cells, in the glands, depending on the type of enzyme.

There is not a chemical reaction that takes place in the body without some kind of enzyme being there to help this thing along.

Mr. DENTON. Can you see them with a microscope?

Dr. MAGNUSON. No, sir. Well, now, I will take that back. With some of our newer microscopes, electron microscopes, you can see some of these protein particles.

Mr. DENTON. That is all.

GROSS COMMITTEE RECOMMENDATION

Mr. FOGARTY. What did the Gross Committee recommend for your research program?

Dr. MAGNUSON. Of the total, sir?

Mr. FOGARTY. Yes, sir.

Dr. MAGNUSON. $10 million.

Mr. FOGARTY. You are up to half of what they recommended?

Dr. MAGNUSON. Yes, sir.

Mr. FOGARTY. Well, you have a long way to go. Is there anything else you want to say?

Dr. MAGNUSON. I think not.

Mr. FOGARTY. Thank you very much.

Dr. MAGNUSON. Thank you, Mr. Chairman.

RADIOLOGICAL HEALTH

TUESDAY, FEBRUARY 6, 1962.

WITNESSES

DR. DONALD R. CHADWICK, CHIEF, DIVISION OF RADIOLOGICAL HEALTH

DR. ROBERT J. ANDERSON, DEPUTY CHIEF, BUREAU OF STATE SERVICES

Object classification

[In thousands of dollars]

	1961 actual	1962 estimate	1963 estimate
11 Personnel compensation:			
Permanent positions	2,011	3,271	4,027
Positions other than permanent	30	36	100
Other personnel compensation	8	5	5
Total personnel compensation	2,049	3,312	4,132
12 Personnel benefits	461	572	671
21 Travel and transportation of persons	298	442	542
22 Transportation of things	72	84	107
23 Rent, communications, and utilities	172	250	339
24 Printing and reproduction	85	114	149
25 Other services	203	278	350
Services of other agencies	18	100	100
Research contracts	869	894	1,710
Nonresearch contracts	141	192	334
Payment to—			
"Bureau of State Services management fund"	398	513	607
"National Institutes of Health management fund"	12	15	20
26 Supplies and materials	320	409	504
31 Equipment	1,095	1,120	1,265
32 Lands and structures	24		
41 Grants, subsidies, and contributions	1,514	2,198	5,045
Total obligations	7,731	10,493	15,875

Personnel summary

	1961 actual	1962 estimate	1963 estimate
Total number of permanent positions	423	636	766
Full-time equivalent of other positions	5	8	13
Average number of all employees	351	570	710
Number of employees at end of year	441	663	800
Average GS grade	6.4	6.6	6.7
Average GS salary	$5,748	$5,779	$5,844
Average salary of ungraded positions	$4,176	$4,120	$4,120

Program and financing

[In thousands of dollars]

	1961 actual	1962 estimate	1963 estimate
Program by activities:			
1. Grants:			
(*a*) Research	1,014	1,198	1,545
(*b*) Training	500	1,000	2,000
(*c*) State program development			1,500
Total, grants	1,514	2,198	5,045
2. Research, training, and technical services	5,809	8,295	10,830
Total program costs [1]	7,323	10,493	15,875
Change in selected resources [2]	407		
Total obligations	7,731	10,493	15,875
Financing: Comparative transfers from other accounts	−7,731		
New obligational authority		10,493	15,875
New obligational authority:			
Appropriation		10,647	15,875
Transferred to—			
"Operating expenses, Public Buildings Service," General Services Administration (75 Stat. 353)		−134	
"Salaries and expenses, Office of the Surgeon General" (42 U.S.C. 226)		−20	
Appropriation (adjusted)		10,493	15,875

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[1] Includes capital outlay as follows: 1961, $949,000; 1962, $1,120,000; 1963, $1,265,000.

[2] Selected resources as of June 30 are as follows: Unpaid undelivered orders, 1960, $148,000; 1961, $555,000; 1962, $555,000; 1963, $555,000.

Mr. FOGARTY. The next item is the Division of Radiological Health. Dr. Chadwick, you may go right ahead.

GENERAL STATEMENT

Dr. CHADWICK. Mr. Chairman and members of the committee, I have a somewhat longer written statement which, with your permission, I should like to submit for the record.

Mr. FOGARTY. We shall put that in the record.

(The statement follows:)

STATEMENT BY CHIEF, DIVISION OF RADIOLOGICAL HEALTH, ON RADIOLOGICAL HEALTH, PUBLIC HEALTH SERVICE

Mr. Chairman and members of the committee, the questions about radiological health which concern most people at this time are, how much fallout are we getting, and what effect will this fallout have on health? What is the Public Health Service doing about it now, and what will it do in the future?

INCREASE, 1963

Before discussing these questions, I should like to summarize briefly our current situation and our request for 1963. This year our budget totals $10,492,599. For 1963, we have requested an increase of $5,382,401 for a program level of $15,875,000. The major elements of this increase are: (*a*) in grants—research grants, $347,000; training grants, $1 million; State program development grants, $1,500,000; (*b*) in direct operations—research, $1,375,000; technical assistance, $255,000; laboratory and surveillance, $523,401, and training $382,000.

IMPACT OF RESUMPTION OF NUCLEAR TESTING

Our initial planning for this budget obviously was done prior to the resumption of nuclear testing. Since that time we have given careful consideration to the new problems such testing has introduced. The result has been changes in program emphasis and timing, and, within available resources, a redirection of certain program elements in an effort to meet this problem, and at the same time move forward in dealing with the longer range program problems which in no way have diminished in importance.

There are two elements to this effort: (1) additional activities concerned directly with the fallout and (2) acceleration of basic program elements made more urgent by fallout.

One example of the increased activity related to fallout is the change in the frequency of milk sampling, from once a month to 3 to 5 times a week at 60 sampling points.

Acceleration of basic program work can be illustrated by the rescheduling of a study on the effects of radioactive iodine 131 used to diagnose thyroid problems in children. Since the levels of radiation exposure resulting from this type of diagnosis are comparable to the levels of iodine 131 found in recent fallout, this project will now be started sooner than originally planned.

When the fallout from Russian tests was first detected in September of 1961, we took immediate emergency action. The radiation surveillance network went into a 7 days a week operation. This network is an early warning system comprised of 60 stations located throughout the 50 States, measuring radiation levels in the atmosphere. A center was set up at headquarters to receive, check, interpret, and report on measurements received from each station daily. These data are immediately furnished to the Secretary of Health, Education, and Welfare, and to the Federal Radiation Council and reported back to the States.

As these reports revealed higher radiation levels in certain geographic areas of the country, Public Health Service sampling of milk, water, and food was increased. This greatly increased that workload in our laboratories. To accommodate the increased workload, double shifts were put into effect, considerable overtime work has been necessary, staff and equipment were shifted from other projects and programs, and additional equipment had to be purchased. Key research projects on the dosage and metabolic movements of radioactive iodine and milkshed countermeasures program were started. To finance this redirection of effort, funds in the amount of $580,000 were reprogramed from other projects by postponing the start of cooperative X-ray control projects with the States and two research projects related to radium and thorotrast.

This is what we have done to date. What about the future? Our plans for 1963 call for continuing all of the work I have just described. Increased efforts in 1963 will be concentrated in the research area. Here answers must be found to the following questions: How does radiation get to man? What are the effects of radiation on man? How much radiation produces how much effect? How and when should we intervene to reduce or prevent exposure to man?

RESEARCH

Our research program is directed to finding answers to these questions. The National Advisory Committee on Radiation has stated that gaps exist in the data needed to relate radiation dose to biological effect. These data are also needed for the establishment of radiation protection standards. The Committee also called for increased emphasis on radiation research in the future, especially on those studies which are directed to the provision of data for standards development.

In line with these recommendations we are continuing to move ahead on research work which will contribute to the basic knowledge required to develop standards and countermeasures. For example, we are in the second year of a 5-year study on the possible effects of using radioactive iodine 131 in the treatment of patients with overactive thyroid. We must determine if these treatmens significantly increase the risk of causing cancer or leukemia in these patients as opposed to those treated by surgery or drugs. This is a large-scale study in cooperation with 26 medical centers and involves analysis of 40,000 individual cases. Large-scale studies such as this are necessary for the proper development of standards.

With the increased use of fusion-type weapons in the recent tests, an additional group of radionuclides has become potentially hazardous to the general population. There is little known about the manner in which these nuclides, such as carbon 14 and tritium, travel from the environment to humans. In 1963 we will start projects to fill this gap so that later we may assess the relationship between dose to the human and the biological effects.

COUNTERMEASURES

In the area of countermeasures, we have been forced to accelerate our efforts. What do we mean when we talk about countermeasures? Countermeasures include any practice, method, or device which can interrupt the flow of radionuclides to humans or help to reduce their effect on humans and facilitate their removal once they have entered the body.

Even before the resumption of testing, some projects were being conducted on countermeasures; for example, in cooperation with St. Louis County we have been conducting a study of the climate, farming practices, and dairy husbandry variables among a sample of dairy farms in milksheds in the St. Louis area. The purpose of the project is to determine if practicable changes in these factors can reduce the levels of strontium 90 in milk.

Another project presently under way involves the development of a commercially feasible process for removal of strontium 90 in milk. This project is being carried out in cooperation with the Department of Agriculture and the Atomic Energy Commission at Beltsville, Md. We have now progressed to the point where we are concentrating on the adaptation of the process for commercial scale application. At the same time, work is being done to insure that in removing the strontium 90 we do not alter the nutritional value. Otherwise, the cure may create greater problems than the original hazard.

In 1963 we plan to explore the use of chelating and binding agents. These agents might be used to prevent the deposition of radionuclides in the body and increase elimination of those nuclides which enter the body. Development of these agents calls for considerable laboratory and animal experimentation.

The increased exposure levels to which the population has been exposed from the recent testing and to which it may be exposed in future tests makes this work on countermeasures a top priority.

Finally, we will continue to use the competencies available in the non-Government scientific community to help in solving this problem through our research grants program.

LABORATORY AND SURVEILLANCE PROGRAMS

A comprehensive surveillance program is a necessary foundation for a meaningful research countermeasures effort. It is essential that we know when unusual radioactivity is present, where it is, what type of radionuclides are present, and if the levels are such that the application of countermeasures should be considered.

As I have explained, our surveillance and laboratory activities have been hard pressed to keep up with the increased activity stemming from the recent fallout. The increased funds requested for facilities operations in 1963 ($195,401) are intended to cover the cost of continuing this increased activity for a full year of operation. In another area related to the aerospace program, the increase requested ($94,000) will be needed also simply to keep the gap between the growth of the problem and our surveillance capability from widening.

Our work on incorporating existing and new data into a comprehensive surveillance system will continue in 1963. We have requested an increase of $234,000 to set up three radiation intelligence centers at existing facilities.

ASSISTANCE TO STATES

As in many other health area, the States form the first line of defense in dealing with radiation control and countermeasures programs. The Public Health Service has been and will continue to assist them in carrying out that role by providing technical assistance, demonstration programs, cooperative projects, and the assignment of technically trained personnel to States. In specific areas, for example the cooperative dental X-ray surpak program, good progress is being made. However, radiation exposure from all sources is the problem to be faced. To meet this total problem requires comprehensive State programs which up to now, in most States, are either nonexistent or totally inadequate.

In 1960, only $1 million was spent by all State and local governments on radiological health. Of this total, five States spent more than half. Twenty-three States had no full-time person working on radiological health. Seventeen had only one such employee. A principal deterrent to the development of such State programs is the lack of financial resources. For this reason we are proposing State program development grants to permit the State to employ the basic staff necessary to at least initiate development of a comprehensive radiological health program. The matching requirement and a first-year level of $1.5 million should give the impetus needed to make significant progress in the development of such State programs.

TRAINING PROGRAMS

It is apparent that trained people are a necessity to all of the programs I have described. Where are these trained people coming from?

The increased funds provided for training in recent years have enabled us to make a good start in training radiation health specialists. However, the gap between the number of people needed and those available, is still too large. For this reason, we are proposing to double the number of specialists to be graduated each year by increasing our training grants to institutions program. An increase of $1 million in 1963 will provide for the training of 150 specialists a year. This is the minimum level recommended by the National Advisory Committee on Radiation as necessary simply to keep pace with the growth of Federal and State programs in radiological health.

The task of keeping specialists and technicians and public health workers properly equipped for their work in other complex and constantly changing fields falls on our technical short-course training program. These are courses lasting from 2 to 10 weeks, on subjects such as medical X-ray protection and radioactive pollutants in water.

Participants include Federal, State, and local health workers. Frequently oversubscribed, these courses become even more important with the increased emphasis being given to radiation since the resumption of testing. To help meet these growing requests, we plan to conduct additional courses in 1963 and to take more of these courses out to the field, where the workers are located.

In summary, the task before us in large and, in spite of progress to date, the increased use of nuclear energy and the resumption of testing makes the need for finding solutions more urgent. The activities of the Public Health Service in the field of radiological health are interdependent. A lag in any one area delays progress in all.

Laboratory and surveillance activities must be increased and improved if we are to know the extent of the problem. Once the levels are determined, laboratory and epidemiological research is necessary to determine the effects on humans and how these effects can be reduced or prevented. Research findings, to be of value, must be applied. This is done at the State and local level, but requires well planned and executed State programs. And finally, progress in all these areas calls for training and trained people to do this urgent and complex work.

Dr. CHADWICK. Thank you, Mr. Chairman.

The comments in that statement, along with our budget presentation, give details concerning our program plans and financial need for 1963.

BUDGET REQUEST, 1963

Briefly, our current situation and our budget request for 1963 is this:

This year our budget totals $10,492,599. For 1963, we have requested an increase of $5,382,401 for a program level of $15,875,000. The major elements of this increase are: (*a*) in grants—research grants, $347,000; training grants, $1 million; State program development grants, $1,500,000; (*b*) in direct operations—research, $1,375,000; technical assistance, $255,000; laboratory and surveillance, $523,401; and training, $382,000.

EFFECT OF NUCLEAR TESTING ON THE BUDGET

Our initial planning for this budget, obviously, was done prior to the resumption of nuclear testing. Since that time we have given careful consideration to the new problems such testing has introduced. The result has been changes in program emphasis and timing, and within available resources, a redirection of certain program elements in an effort to meet this problem, and at the same time, move forward in dealing with the longer range program problems which in no way have diminished in importance.

RISKS OF RADIATION EXPOSURE

Thus, you have before you the details of our program and our request for 1963 and I shall be happy to answer questions which you may have in connection with this material. However, before doing so, I should appreciate a moment or two to make some general comments with respect to the principles basic to programs in radiological health. The Federal Radiation Council in its guides has adopted as a basis for Federal policy the scientific hypothesis that any amount of radiation exposure involves some risk in exposed population groups. Thus, the development and continued use of the various beneficial applications of radiation and atomic energy inevitably involve the acceptance of a certain health risk.

Several points follow from this conclusion. First, we must make every effort to study the relationships between radiation exposure and effects on man in order that we may make intelligent decisions about radiation exposure on the basis of definite knowledge as to the risk we are in fact accepting. Second, in considering present and future applications of radiation, many of which may well be vital to our national security, it would seem that we, as a nation, have a clear obligation to assure that we are making an effort in health protection which bears a reasonable relation to the effort we are making in the promotion and development of these nuclear energy applications.

BENEFITS OF RADIATION

The importance of this latter point cannot be overemphasized. Radiation has brought us many extremely important benefits. New applications, new uses, and new techniques are constantly being developed. Many of these intimately involve our national security. Lest these developments be impeded, it is essential that we make parallel efforts in the health fields so that we may derive these benefits without undue risk.

The needs in research are critical. We have already mentioned the importance of determining the relationship between radiation dose and effect on man, so that we are in a position to make decisions on the basis of firm knowledge as to the risk we are accepting. We must also conduct research which will permit us to know where and how and when prevention and control can most expeditiously be applied.

Equally important is the control of radiation exposures. To apply either the knowledge we already have or that which our research will give us, we need programs of radiation assessment and control at the Federal, State, and local levels. In the development of these prevention and control programs, the need for training personnel is basic.

Finally, in considering the new applications of radiation, we must not lose sight of those which have been with us for many years. Since the effects of radiation exposure are cumulative, these sources become of even greater significance when new sources are added.

The budget request before you, reflecting our proposals as detailed in the budget justifications, provides for a significant program effort to meet these needs.

Mr. Chairman and members of the committee, I shall be glad to expand on any of these points or to answer any questions, as you may desire.

HEALTH ACTIVITIES OF THE ATOMIC ENERGY COMMISSION

Mr. Fogarty. That is a fine statement. What is the Atomic Energy Commission doing in this area?

Dr. Chadwick. The Atomic Energy Commission, as you know, has a basic responsibility for health and safety as related to the sources that are under their jurisdiction. And in connection with that health and safety program, they have a responsibility to conduct research which will give them information on which they can base their health and safety programs.

The question is——

Mr. Fogarty. Will you explain what are your duties in the field, so we will have the two right together?

Dr. Chadwick. Our duties are broadly in the radiation field. In other words, the Atomic Energy Commission is concerned with reactors, reactor-produced isotopes, source materials. We are concerned with all sources of radiation, including X-rays, and the naturally occurring radioactive materials which we have been using prior to the onset of the nuclear energy program.

So, in a sense, these activities are in the same area, but their responsibility is related to the specific sources under their jurisdiction; our responsibility is related to all sources of radiation exposure.

Mr. FOGARTY. Do you think that is sufficient for me to give as an answer if someone asks me about it on the floor?

You are familiar with what the Gross report said on this?

Dr. CHADWICK. Yes, sir; I am.

As a matter of fact, we have taken action in line with their recommendation and have set up a continuing mechanism of program review, between the Division of Biology and Medicine of the Atomic Energy Commission and our Division of Radiological Health, so that we can make sure that gap areas are covered, that we are making the most effective use of our talent and resources, and that there is no unnecessary duplication of effort.

Mr. FOGARTY. I see.

Do you call that the radiation hazards research liaison committee?

Dr. CHADWICK. Well, sir, we did not give it any such title, but we have set up a mechanism. I do not know that we have given a name to the mechanism yet.

Mr. FOGARTY. But we can say that there is not any duplication now between Atomic Energy Commission and your work?

Dr. CHADWICK. Yes, sir. And there is a continuing mechanism to insure that such duplication does not arise in the future. In other words, we have a coordinating mechanism.

Mr. FOGARTY. Does the Space Agency enter into this at all?

Dr. CHADWICK. I do not believe they do, sir, in terms of radiobiology research.

1963 BUDGET REQUEST

Mr. FOGARTY. The appropriation for 1962 is $10,647,000 and the request for 1963 is $15,875,000, an increase of $5 million-plus and there is no reserve for savings in 1962.

How did you get by?

Dr. CHADWICK. I assume that reflects a recognition of the importance of our program, sir.

Mr. FOGARTY. I see. The others are not important enough?

Dr. CHADWICK. Well, I said that ours was.

Mr. FOGARTY. You should listen to the problems we have with occupational health. They felt they were pretty important too.

Dr. ANDERSON. There were several events starting in August that gave this program a little more urgency than some of the others; namely, the resumption of atomic testing, Mr. Chairman, which imposed more jobs on us.

Mr. FOGARTY. This is the first Public Health Service item that we have come to that has received halfway decent treatment, by the Bureau of the Budget, may I say.

NORTHEASTERN RADIOLOGICAL HEALTH LABORATORY

Where is the "newly established Northeastern Radiological Health Laboratory" referred to on page 64?

Dr. CHADWICK. That is in Winchester, Mass., sir.

Mr. FOGARTY. I see. What activities will be carried out there?

Dr. CHADWICK. Well, the activities will be in three categories. First, they will be in service—that is, surveillance service—determination and evaluation of radiation levels. And this will be particularly in the 15 Northeast States.

Second, it will be used as a focus for training, particularly related to assistance to State people in developing competence in their own laboratories to conduct their own radiation surveillance; in other words, laboratory training, some on-the-job training.

Finally, it will serve as a focus for some of our research activities in that geographic area. As you know, there are many very important academic institutions and technical facilities in that area, and we plan to use the laboratory as a research focus as well, particularly on studies of exposure of man.

GRANTS TO STATES

Mr. FOGARTY. Over half of the increase is in grants. I notice you are asking $1.5 million to start a program of formula grants to States.

Dr. CHADWICK. Yes, sir.

Mr. FOGARTY. You think such a program is necessary?

Dr. CHADWICK. Well, we have found that the States are simply not able to get their programs in radiological health going, and we did a survey recently and found——

Mr. FOGARTY. Has any one State done anything in this area?

Dr. CHADWICK. Oh, yes, sir. I did not mean to imply that not one of the States has done anything.

Mr. FOGARTY. Does any one State have a decent program?

Dr. CHADWICK. I would say there are about a dozen States that have good beginning programs in at least one phase of radiological health; yes, sir.

RHODE ISLAND

Mr. FOGARTY. What is Rhode Island doing?

Dr. CHADWICK. Rhode Island is one which we feel needs some support. They are operating an air-monitoring station in Rhode Island and are beginning to use our dental surpak method.

Mr. FOGARTY. What was that?

Dr. CHADWICK. The dental surpak method. This method, in which a special film pack is mailed to a dentist, I believe was described to your committee last year. It permits one to evaluate several very important features of the radiation safety of a dental installation without making an onsite visit. In other words, it is a mail-order-type survey, in which a film is sent to the dentist, exposed in a certain way and sent back to the laboratory to analyze. You can tell what the needs are for coning and filtration in that dental unit. It is quite a significant development.

Mr. FOGARTY. Is it being used?

Dr. CHADWICK. Yes, sir. There were about 8,000 of those surpaks used in fiscal year 1961. This year we will probably use about 20,000.

Mr. FOGARTY. So it is working pretty well?

Dr. CHADWICK. Yes, sir. That is a very important phase of our program.

Mr. FOGARTY. But you need this to prop up some of these programs in the States?

Dr. CHADWICK. Yes, we do.

Mr. FOGARTY. I imagine there are some States that are not doing anything?

Dr. CHADWICK. Yes, sir. There are a very large number of States in which there are not any people working on radiological health whatsoever.

Mr. FOGARTY. Would you say this would be about the proper level for financing in future years also, or do you think the program would be increased as the years go on?

Dr. CHADWICK. I would expect, sir, that the level will increase somewhat; not indefinitely, but I would expect it to increase as the States are able to match the funds and put——

Mr. FOGARTY. That was my next question. Is this on a matching formula?

Dr. CHADWICK. Yes, sir; it is a 50–50 matching.

RESEARCH AND TRAINING GRANTS

Mr. FOGARTY. You are also requesting increases of $347,000 for research grants and $1 million for training grants. This doubles the amount for training. Are we that far behind?

Dr. CHADWICK. The National Advisory Committee on Radiation recommended that we be in a position to provide for the training of 150 radiation specialists per year. The current level of $1 million permits 75. The increase that we are requesting will permit us to train the level of 150 radiation specialists that the National Advisory Committee recommended.

Mr. FOGARTY. The Gross report has recommended that $5 million annually be used for this purpose. Is that right?

Dr. ANDERSON. That is correct.

Dr. CHADWICK. The total of $5 million for training grants, I believe, is to include technician training as well.

Mr. FOGARTY. All training, this is under (B) on page 246.

Dr. CHADWICK. On all training grants, yes, sir.

OTHER PROGRAM INCREASES

Mr. FOGARTY. Now you have four other program increases set forth on page 67. Would you supply for the record a breakdown of these increases and why they are needed?

Dr. CHADWICK. Yes, sir.

(The requested information follows:)

Program increases requested, 1963

	Positions	Amount
Radiological health, total	130	$5,235,401
Grants, total	0	2,847,000
Research, grants	0	347,000
Training grants	0	1,000,000
State program development grants	0	1,500,000
Research, training, and technical services	130	2,388,401
Research total	34	1,332,000
Evaluation and planning	2	27,000
Laboratory studies of the ecology of environmental contamination	0	98,000
Epidemiological field studies on specific problems	7	408,000
Exposure control and reduction	2	69,000
Supporting laboratory studies in correlating biological exposure to tissue damage	5	201,000
Countermeasures	16	499,000
Research grants administration	2	30,000
Technical assistance, total	22	216,000
Technical consultation	10	91,000
Special project development	12	125,000
Laboratory and surveillance activities, total	50	474,401
Radiological intelligence network	20	216,000
Technical operations	9	94,000
Facilities operation and planning	21	164,401
Training, total	24	366,000
Technical short-term training	6	213,000
Extramural training and materials development	7	60,000
Advanced academic training area	11	93,000

GRANTS

Research grants

The requested increase will permit continuation of grants active in 1962 and the award of 20 new grants.

Training grants

These grants, which are awarded to institutions, are an integral part of a total training program in radiological health. The increase requested will support a program to train 150 radiation health specialists annually, as recommended by the National Advisory Committee on Radiation.

State program development grants

The States and local communities must play an active role in a national program of radiation control. Development of adequate State programs has been hindered, however, by a lack of financial resources. The increase requested will support initiation of a program of grants to States, to stimulate development of comprehensive radiological health programs at that level.

RESEARCH

If significant progress is to be made in the reduction and control of radiation effects on humans, a major research effort must be undertaken in the areas of assessment of the effects of radiation on humans and development of control and countermeasures to minimize these effects. There are no quick and easy answers to these questions. Rather, broad-based, long-term research projects must be conducted to provide the data needed to carry out corrective measures. Each delay in starting these projects puts the answers farther away. The resumption of nuclear testing has made the problems more urgent. The increases requested for research will be used in three main areas:

(1) Investigating the effects of radiation on humans through large-scale epidemiological field studies;

(2) Following up these studies with intensive laboratory investigations on animals; and

(3) Developing countermeasures to prevent or dilute the effects of radiation on humans and animals.

TECHNICAL ASSISTANCE

Recognizing the responsibility of States for the protection of their people from radiation, the increase requested here will be used to provide technical assistance to strengthen the radiological health competency of the States. This will be done first, by assigning 10 additional technical personnel to work in States. Then, in order to make full use of control measures presently available, an X-ray demonstration project will be undertaken to insure that these techniques are applied in the States wherever possible.

LABORATORY AND SURVEILLANCE ACTIVITIES

The increase requested for this activity will permit an expanded effort in converting the present system of separate surveillance networks into a comprehensive surveillance system known as the radiological intelligence network. In addition, a portion of the increase will be used to provide greater laboratory capacity at our existing laboratories in order to accommodate the increased sampling and analysis workload resulting from the resumption of nuclear testing.

TRAINING

Basic to the entire Federal and State effort in radiological health is an adequate supply of trained personnel. The increase requested provides for additional specialized technical short-course training. More of these courses will be conducted in the field to allow for greater participation by State and local health personnel. In addition, the funds requested will provide long-term radiological health specialist training for 10 Public Health Service officers.

INCREASED KNOWLEDGE OF RADIATION

Mr. FOGARTY. What new knowledge of value have we gained in the field of radiation during the last year?

Dr. CHADWICK. Well, it is somewhat difficult to cover that briefly.

Mr. FOGARTY. Just give two or three examples, and then you can expand that for the record.

Dr. CHADWICK. Yes, sir. Let us take a look at radiation exposure control, because I think this is quite important. We have developed techniques for exposure control in X-ray exposure programs.

Our X-ray laboratory in Rockville is developing devices for the quick measurement of the various technical factors in X-ray machines which will permit us to know what corrections to make.

We have several research projects which have made progress in determining how best to measure the amount of exposure that population groups are receiving.

We have a program underway out in Farmington, N. Mex., in the area irrigated by the Animas River in which there have been increased amounts of radium. We have been carrying on a program there to determine the relationship between the amount of radium in the environment and the amount that gets into man. We have been developing techniques by which these exposures can be most effectively measured.

We have also moved forward in the development of a much more effective nationwide surveillance program than we have had in the past. We have increased our surveillance so that we now have over 60 air-monitoring stations; we have over 60 milk-monitoring stations; and this year we are increasing to over 20 the number of points at which we take total diet samples in order to assess the total intake from all sources.

Mr. FOGARTY. You may provide some other examples in the record. I think that gives me an idea about that.

(The following was submitted later:)

NEW KNOWLEDGE OF VALUE IN THE FIELD OF RADIATION

Our radiation surveillance activities during the period of Soviet nuclear weapons testing in the fall have given us much valuable information on the levels of radioactivity to be expected in the United States from such testing. It provided information on the time and geographical variations, and some leads as to factors accounting for the variations. We have also obtained measurements of radioiodine in thyroids of living human patients, which, when compared with our environmental data, provide information on the relationship between environmental levels and amounts actually retained in the body.

As a result of the expanded milk, air, total diet, and water networks, we have progressed to the point where we can estimate total ingestion of radiation for humans in different geographic areas, with some reasonable accuracy. One of our research grantees has developed very important data suggesting that teeth may be able to be used more widely for estimating body burdens of strontium 90. Since teeth are easier to obtain than bones, this could have important implications for the assessment of radiation exposures.

Our experience with the dental surpak method has provided valuable information on the feasibility and effectiveness of a method of surveying dental X-ray machines without a visit to the dental office.

Our laboratory adaptation of the ion exchange technique for the determination of strontium 90 in milk reduces by 50 percent the time between sampling and the time final results are obtained for strontium 90. By reducing this time interval it will permit the more effective application of countermeasures.

The pilot phase has been completed on developing a feasible economic process to remove radionuclides from milk. Work is now underway on developing a commercial scale process. This project is being conducted in cooperation with the Atomic Energy Commission and the Department of Agriculture. In addition, nutritional studies have been started to insure that the removal of strontium 90 does not lower the nutritional content of the milk.

Preliminary data have been obtained from the first phase of a research project at our southeastern laboratory. Dogs and rabbits have been subjected to in utero radiation exposure. Evaluation of the preliminary data tends to show some change in birth weights and some neurological damage. These early findings will be explored more intensively.

RADIOLOGICAL SAFETY RESEARCH

Mr. FOGARTY. Have any advances been made with regard to standards of safety and waste disposal?

Dr. CHADWICK. Quite a bit of our research in what we call the ecology of radioactive materials in the environment, is directed toward assesssing the amount of radiation exposure which will result in a given population group with a given amount of radioactive material being released to the environment.

Much of our research effort is devoted to determining what quantity of radioactive materials can be released to the environment in such a manner as not to exceed the radiation protection standards developed by the Federal Radiation Council and approved by the President.

Another important part of our program is the assessment of the effects of these amounts of radioactive materials in order to find out whether the risk that we are accepting in releasing a given amount of radioactive material into the environment is what we estimate at present.

RADIATION INTELLIGENCE NETWORK

Mr. FOGARTY. What are your plans for further development of the radiation intelligence network?

Dr. CHADWICK. We believe, in order to make effective decisions nationally on promotion and development of atomic energy and other radiation uses and also to make decisions in programs as to where efforts need to be made in exposure reduction, that we need to have a system where we can determine the radiation exposure being received by the American public.

In other words, we need to have a better knowledge of what exposures are at the present time.

Our networks are now based upon what might be considered a spot sampling method. We need more information on which we can determine how effectively our sampling programs are indeed reflecting the actual exposures of people. We need to find out whether the samples we are taking, the locations where they are being taken, the number of samples that are being taken, do indeed give us enough information upon which we can judge the exposures of people.

When we can judge the exposures of people, then we will know what actions need to be taken, and know how effectively we are following the radiation protection standards of the Federal Radiation Council.

ORIGINAL BUDGET REQUESTS

Mr. FOGARTY. What did you ask the Department for?

Dr. CHADWICK. Our original request to the Bureau of the Budget was $16,830,000. However, following the fallout situation, we asked for and the Department submitted to the Bureau of the Budget a request for an amendment of the 1963 budget.

Mr. FOGARTY. How much?

Dr. CHADWICK. That was something over $11 million.

Mr. FOGARTY. So in order to bring this up to date, you ought to have around $26 or $27 million, instead of $15 million?

Dr. CHADWICK. Well, that is what our original request and amendment would amount to.

Mr. FOGARTY. Will you supply for the record, please, a complete breakdown of that additional $11 or $12 million that you think you need for 1963 in order to comply with the recommendations of the Gross report?

Dr. CHADWICK. Yes, sir; I will supply that.

Mr. FOGARTY. Give us a breakdown and tell us how important they are.

(The requested information follows:)

Analysis, Use, and Importance of Pending Budget Amendment, 1963

The following statements are supplied in explanation of the programs contained in a proposed amendment to the 1963 budget for radiological health. The programs therein proposed were developed before the recommendations of the Gross Committee were available but, in general, the program level proposed is of the magnitude recommended by that Committee. The following table summarizes the elements of increase requested:

Activity	Position	Amount
Research grants		$2, 000, 000
Research, training, and technical services:		
Research	98	4, 355, 100
Technical assistance	40	3, 133, 500
Laboratory and surveillance activities	134	1, 673, 500
Training	20	223, 900
Subtotal	292	9, 386, 000
Total	292	11, 386, 000

Research grants (+$2,000,000)

The increase requested for research grants would permit an increased utilization of the talent and facilities available in the non-Government scientific community. Emphasis would be placed on projects dealing with countermeasures in an effort to more rapidly arrive at countermeasure applications.

RESEARCH

An increase of 98 positions and $4,355,100 would allow significant progress to be made in the areas of assessment of the effects of radiation on humans and development of control and countermeasures to minimize these effects. The resumption of nuclear testing has added a note of urgency to finding answers in these areas. Funds have been requested for use in specific projects as follows:

Countermeasures (+37 position, +$2,437,700)

This area would receive greatly expanded attention with the increase requested in the proposed amendment. Studies would be undertaken to explore various factors which could contribute to a control and countermeasures program, including changes in the food chain from farming and husbandry practices, changes in food handling, reprocessing, diversion to other uses, biological blocking in animals and humans, and the use of chelating agents to purge the biological system of specific nuclides. Increased effort would also be devoted to determination of toxicity of any agent planned for use in blocking or binding nuclides, to insure that the reduction of the nuclide hazard would not simultaneously present a toxic hazard.

Field studies of methodology to improve total exposure assessment (+12 positions, +$523,000)

The increase requested would provide for initiating a large-scale field study in cooperation with hospitals and university medical centers in an effort to determine the possible correlations between levels of radiation in the environment, animals and humans, and their interrelationships. This will involve collection and analysis of bone and thyroid samples.

Laboratory studies of the ecology of environmental contamination (+19 positions, +$598,200)

The requested increase would provide for studies on determining the significance of such radionuclides as carbon 14 and tritium as potential radiation hazards. These elements are being produced in increasing amounts with the introduction of testing of fusion-type weapons (hydrogen bomb) as opposed to the eariler fission types (atom bomb).

Epidemiological Field Studies on Specific Problems (+4 position, +$152,600)

The increase requested would permit initiation of a diagnostic I^{131} epidemiological study concentrating on children, in cooperation with pediatricians and thryoid specialists. This study would be expected to provide important data on the genesis of thyroid carcinoma at levels more comparable to those experienced as a result of the resumption of testing.

Supporting laboratory studies in correlating biological exposure to tissue damage (+12 positions, +$333,700)

The requested increase would provide for laboratory research, both intramurally and by contract, on investigating the dose to tissues and organs from fission products under the exposure conditions generated by fallout, and on the dose to the bone marrow from Sr^{90}. Additional work on animals would be undertaken to determine dose to specific cellular elements and the serum of the bone marrow.

Evaluation and planning (+14 positions, +$309,900)

The increase requested would be used for work on prediction of contamination in the environment and the resulting exposure to humans. Both our personnel and those of non-Government research organizations would participate in this work.

TECHNICAL ASSISTANCE

An increase of 40 positions and $3,133,500 would permit an expanded program of technical and financial assistance to States in the development of radiological health programs. Emphasis would be placed on development of laboratory capability to enable the States to carry out their responsibilities and contribute to the national capability for surveillance and analysis. Laboratory capability is needed in the States to insure ability to take appropriate countermeasures when and where indicated if necessary. Specific projects in which increases would be applied are as follows:

Special project development (+20 positions, +$2,987,000)

This requested increase would allow us to support the establishment of 20 laboratories in States. The major portion of this amount would be used to provide equipment for the laboratories.

Technical consultation (+20 positions +$146,500)

The increase would permit assignment of 20 additional personnel to States to assist in the organization and conduct of State programs.

LABORATORY AND SURVEILLANCE ACTIVITIES

An increase of 134 positions and $1,673,500 would be used to strengthen the Public Health Service capacity for surveillance and analysis. The laboratory workload has increased rapidly following the resumption of testing. Additional resources are needed in this program to permit timely and efficient analysis of data on a greatly increased number of samples from a greater variety of sampling points. Specific project increases are as follows:

Facilities operation and planning (+112 positions, +$1,069,500)

Part of the increase requested would provide funds to establish a Midwest laboratory to provide additional capacity for analysis of samples. The balance of this increase would support the expanded analytical workload at all laboratories brought about by the resumption of testing.

Radiological intelligence network (+29 positions, +$258,500)

The increase requested in this project would strengthen our ability to collect, correlate, and interpret data from all sources on radiation levels.

Instrumentation evaluation (+2 positions, +$345,500)

This increase would be used to develop and acquire a number of portable milk surveillance instruments to be loaned to States and used mainly by dairy processing plants to obtain instant information concerning situations in which radiation levels are increasing rapidly.

TRAINING

An increase of 20 positions and $223,900 would allow a stepped-up effort to train the personnel to be employed in the new laboratories in States, in the Public Health Service laboratories, and in the State assignee program.

PROJECTION OF FUTURE NEEDS

Mr. FOGARTY. What do you think you will need by 1970, do you have any idea?

Dr. CHADWICK. Well, I guess it depends on how you project the needs; whether they continue to increase at the same level. But certainly if one looks at the expenditures that are being made for the development and promotion of various uses of radiation, and if, in accordance with the suggestions I made in my introductory statement, we make an effort which is reasonably appropriate to what we are spending——

Mr. FOGARTY. This is a very serious problem, is it not, Doctor?

Dr. CHADWICK. Yes, sir, it is.

Mr. FOGARTY. It is a hard thing to briefly describe, but describe how dangerous this is, and why we should be concerned about this problem.

Dr. CHADWICK. I think that it is best exemplified by the policy statement that the Federal Radiation Council has made, that any amount of radiation exposure involves some risk in an exposed population group.

Any time we develop a new source of radiation exposure which is going to increase the level of exposure to the population, according to that hypothesis there will be some injury in the exposed population group.

It is a statistical phenomenon—not every single individual will be injured, but in a large population group, the incidence of such diseases as leukemia may be increased, the incidence of genetic mutations, resulting in congenital deformities, and other genetic defects will be increased.

EVIDENCE LINKING LEUKEMIA TO EXCESS RADIATION

Mr. FOGARTY. Is there any scientific evidence that leukemia will be increased by additional fallout, or bone cancer?

Dr. CHADWICK. Well, there is evidence that relatively high doses of radiation will increase the leukemia and bone cancer incidence. There is no direct evidence that exposures as low as, for instance, fallout, will do so.

Mr. FOGARTY. There is more of it being reported every year, though?

Dr. CHADWICK. Yes, there is.

Mr. FOGARTY. We are not sure yet whether it is partially due to better diagnosis or not.

Dr. CHADWICK. Yes. I do not think that one can necessarily relate it to radiation exposure.

Mr. FOGARTY. Four or five years ago, it was awfully difficult to get any funds for radiological health, because many people would say, "Well, what is that?" It did not strike a bell.

But now, with nuclear testing, I think it is registering.

Dr. CHADWICK. Yes, I think there is a clear recognition that when activities are going on which may do damage, it is incumbent upon us to find out how much damage may result in the population, and what can we do about it.

And a great deal of our program is devoted to finding out what can we do about exposure. Are there safe, effective techniques whereby exposure can be reduced without creating problems? Some of the things you might do would indeed create problems. Some of the countermeasures that might be taken, might involve a serious impact themselves.

So we really have a serious obligation, if we are going to be generating more uses, to parallel in developing knowledge about the effects and knowledge about things that can be done to reduce the effects.

Mr. Fogarty. Mr. Denton.

MEASUREMENTS OF RADIATION

Mr. Denton. Is there any measurement by which you can tell how much radiation there is in the air?

Dr. Chadwick. Yes, sir, there is. We have a network of stations that measure the particulate radioactive material in the air.

Mr. Denton. What is the measurement? What do you call it; what is the name of it?

Dr. Chadwick. Well, we measure it—you mean the units in which it is measured?

Mr. Denton. Yes.

Dr. Chadwick. We measure it in what are called micromicrocuries per cubic meter of air. In other words, in a cubic meter of air the amount of radioactivity in that cubic meter—these are the units in which we report that.

DANGEROUS RADIATION LEVEL

Mr. Denton. And how much is dangerous to human beings and to vegetation and to other forms of life?

Dr. Chadwick. Well, sir, this question of how much is dangerous depends upon how one defines "dangerous."

I am sorry that it is not possible to give what appears to be an uncomplicated answer, but our present hypothesis is, that any amount of radiation added to what we are receiving will produce some deleterious effect and that the amount of this damage will increase with the increasing exposure.

Now, of course, at a certain point the radiation might kill people, you know. But below the lethal level where you arbitrarily decide is a danger point depends upon what you are comparing it with, you see.

Mr. Denton. You have measured the amount of radiation that came off the recent testings of the bombs or explosions by the Russians; did you not?

Dr. Chadwick. Yes, sir.

Mr. Denton. And how much was that, if that is not a secret?

Dr. Chadwick. Well, it is no secret. The levels of radioactive iodine, for instance, got up into range 3 of the Federal Radiation Council guidance, the range at which one has to at least consider whether countermeasures are necessary. In other words, it is above a level which is considered an acceptable risk for the population if continued over a year.

Mr. Denton. Now, what would the dangers be that would come from these tests by the Russians?

Dr. Chadwick. Well, it would be all of the various kinds of effects which occur from added radiation exposure. In other words, the——

Mr. Denton. In other words, with regard to leukemia?

Dr. Chadwick. The genetic mutations.

Mr. Denton. The deformities and things like that?

Dr. Chadwick. That is right.

Mr. Laird. You cannot trace any of those things to the Russian tests.

Dr. Chadwick. No, what I am trying to say——

Mr. Laird. I was afraid you were giving the impression that you can trace that to the Russian tests, which you cannot.

Dr. Chadwick. I did not mean to convey that impression.

Mr. Laird. I think it is bad to do so. There is no sense in getting our people panicky over the situation.

Dr. Chadwick. No, no; I certainly did not intend to.

Mr. Denton. What I am trying to get is how dangerous is this to people and vegetation?

Dr. Chadwick. I would say that the added risk of the testing which has occurred to date is very small indeed. I do not think we can say with certainty that there has been no additional risk of injury, but it would be very small, very small indeed.

Mr. Denton. Have you done any work on fallout shelters?

Dr. Chadwick. It is not our program, sir. The fallout shelter program is in the Department of Defense.

Mr. Denton. You have done nothing about that?

Dr. Chadwick. Not in our programs.

Mr. Denton. But to come back to these recent testings, what was the measurement of that on radiation in the air in this country?

Dr. Chadwick. Well, there were different kinds of measurements that were made, sir. We had measurements that were in air; that is, the gross radioactivity in the air.

Mr. Denton. Yes.

Dr. Chadwick. Then we have measurements in milk, we have measurements in water, and so on.

I cannot give you a single measurement that would be——

Mr. Denton. What I am trying to get at is how much deleterious effect that has.

Dr. Chadwick. Well, I think I would go back to Mr. Laird's correction here, that I do not think that we will ever be able to say exactly that such-and-such an individual will develop leukemia or bone cancer or have a congenital malformation because of the tests. If anything will happen at all, there will be a very small increase over a long space of time, a very small increase in the rate at which these effects occur in the population. But it will be very small, and we will never be able to say with certainty that a particular case of congenital malformation was traceable to the tests or that a particular case of leukemia was traceable to the tests. All we will be able to say, if anything, is that there was a small increase, although the chances are that we will not be able to say that, actually.

Mr. Denton. I think that is all.

INDIAN RADIATION STUDY

Mr. LAIRD. Are you familiar with the study that is taking place in India?

Dr. CHADWICK. Well, I am familiar in a general way. The study has not really gotten too well started, as I understand it. I do not think there is any direct relation with any of the people in this country.

In other words, the Indian Government, as I understand it, is going to set that study up themselves.

Mr. LAIRD. The study is already started.

Dr. CHADWICK. Yes; I know that the Indian Government is setting the study up; but it will be a very, very long-term study, as you well know. And I am not familiar with the exact details of how far they have gotten in setting it up.

Mr. LAIRD. We had a group that went over there and made certain tests. This was done by the Atomic Energy Commission. Are you familiar with the information they brought home?

Dr. CHADWICK. I am familiar, in general, with the results of the increased level of background of radiation which was found in that area resulting from the increased radioactive material in the earth there.

You see, the study is an attempt, No. 1, to measure the increased radiation exposure in that area, as opposed to a control population; and then, secondly, to set up a mechanism for measuring the effects. In other words, it would be a large epidemiological study to compare the disease picture in the population in that area to a control population area to see whether any differences are observed.

STUDY OF SECOND GENERATION JAPANESE EXPOSED TO RADIATION

Mr. LAIRD. Are you familiar with the studies that are being carried on in Japan?

Dr. CHADWICK. Yes, sir.

Mr. LAIRD. Were there any results of that study that would indicate a large amount of deterioration in the second generation Japanese?

Dr. CHADWICK. There have as yet been no findings which show a genetic effect in the first generation of the survivors. The only thing that has been shown is a small change in the sex ratio. There is a reduction in the ratio of girls to boys, I believe it is.

But there has been no evidence of any genetic defect; however, the numbers involved are not significant. One would not expect to find any statistically significant effect in a generation; however, if one continued to study over a long time, and if one looked at these offsprings, not just how many had congenital malformations, but looked at the lifespan in the offspring, it might be possible to see some change over the normal population. But, of course, that would require a very long period of time.

However, this study is planned to be a long-term study, as you know.

PUBLIC CONCERN OVER RADIATION

Mr. LAIRD. I do not mean to minimize the problem that we face here, because I believe it is a serious problem. But from correspondence that I received, it seems to me that a lot of people are really very frightened——

Dr. CHADWICK. Yes, sir.

Mr. LAIRD. To the point of being panicked.

Dr. CHADWICK. Yes, sir; we are getting that.

MILK

Mr. LAIRD. Particularly some letters that I have received from women lately who are insisting on taking their children off milk. It seems to me that the Public Health Service is responsible for putting out this information, and so it has some responsibility to try to assure these people that the levels that we have are not dangerous.

Even if the United States does not test its NIKE-ZEUS type of warheads, we will reach a higher level of radiation in the spring; is that not correct?

Dr. CHADWICK. Yes, sir, absolutely.

Mr. LAIRD. As a result of the Russian tests.

Now, several years ago, I discussed with Dr. Burney some means of trying to minimize the fear that people have because you use milk as your sample. You use milk because it is the easiest thing for you to test, and it can be found in many places. You are not making many announcements on wheat; you did for a while.

Dr. CHADWICK. It is not solely because it is easier to test, sir; it is, indeed, a very important source of intake of radioactive materials. As a matter of fact, the radioactive material which has been in the news lately, this fall, of course, was radio-iodine. And milk is indeed the principal source of intake of radio-iodine.

Mr. LAIRD. But you never reached a dangerous level.

Dr. CHADWICK. No, sir. I was trying to distinguish between why we test milk versus what are the results we found. I do not believe you had finished your question. Had you, or do you want me to comment?

Mr. LAIRD. No; that is all right; go ahead.

Dr. CHADWICK. Well, we have repeatedly emphasized in our statements to the press and in our various press releases—and I would be very happy to supply some of those to you, if you wish—we have repeatedly emphasized that the levels are not a cause for alarm.

Mr. LAIRD. I realize that your press releases are very good. But sometimes these headline writers distort the picture a little in the headline.

Dr. CHADWICK. Well, I quite agree with you; although I think that one should say here—and I have had many of my friends comment on this—that the kind of reporting that has taken place in recent months in connection with the fallout has tended to be more balanced than in the past. It was the general feeling that there was more balanced reporting.

We have been holding a series of seminars for the press. We felt that we wanted to give them an opportunity to come in and get the facts and also be in a position to ask questions. So we have been holding a series of seminars for the press. And I think reporters are much better informed now than they have been in the past, and I think we are getting much less of these improperly emphasized stories, let us say.

Mr. DENTON. Would you yield there, Mr. Laird?

Mr. LAIRD. Surely.

Mr. DENTON. This is off the record.

(Discussion off the record.)

RELATIVE DANGER OF NUCLEAR TESTING AND KNOWN DISEASES

Mr. LAIRD. Does the Public Health Service have knowledge which prevents them from positively stating that the risk from nuclear fallout, from the testing of thermonuclear weapons, is many times less than the risk from known diseases and accidents?

Dr. CHADWICK. I am not quite sure I got that question, sir. Would you—you said, do we have information which would permit us to say that the risk from testing is less than the normal burden of diseases in the population?

Mr. LAIRD. Right; from the testing that has taken place in our entire lifetime.

Dr. CHADWICK. Yes.

Mr. LAIRD. Is the danger from that testing many times lower than the risk from known diseases and accidents?

Dr. CHADWICK. Well, "Yes" is the answer to the question.

Now, the point is that the diseases which we find are caused by radiation are not different from diseases which normally occur in the population; in other words, leukemia, bone cancer, and so on. These conditions which can result from radiation exposure are not different from the normal diseases in the population.

Now, we do not know exactly at these low levels what proportion of that natural load of disease may be resulting from radiation, either natural background radiation, which, of course, has been with us all the time, or the added radiation exposure.

What the scientists have said, though, is that it is unlikely that natural background radiation accounts for more than about 10 percent of the natural incidence of various kinds of cancer—leukemia, and so on. If that is the case, in other words, if natural background is accounting for about one-tenth of the natural incidence, then, since the exposure to the bone marrow from testing to date has been less than the exposure from natural background, then the effect has been less than one-tenth of the normal burden.

Operating on that assumption—remember, that is an assumption based upon what we call extrapolating the curve; in other words, looking at the high-dose levels where we have information and then continuing the line down into the low-dose range, where we do not have direct information.

REMOVAL OF STRONTIUM 90 FROM MILK

Mr. LAIRD. Why then cannot the Public Health Service categorically state that this research at Beltsville on strontium 90 removal is designed to cope with the problems of all-out war and that such expensive and disruptive procedures are not necessary to permit further atom bomb testing or peacetime uses of atomic energy?

Dr. CHADWICK. I would say that we do not expect the Beltsville—that is, this process of removal of strontium 90 from milk—we do not expect the process to have to be used for levels of radioactivity resulting from weapons testing which has occurred to date or that which we expect to occur in the future.

Of course, this is not too easy to predict, as you know. Now, whether——

Mr. LAIRD. But that problem is really being developed for——

Dr. CHADWICK. Much higher levels.

Mr. LAIRD. Much higher levels of radioactivity?

Dr. CHADWICK. Yes, sir; exactly. Much higher levels than we can expect on the basis of what we know now; that is, the testing which has occurred to date and that which we expect in the future.

But as soon as one projects, of course, into the future, this becomes somewhat more difficult to do.

Now, the question of whether this might be used in the event of a peacetime accident is another matter, because it is conceivable that circumstances might arise where a large area would have some heavy contamination.

But, in general, the statement that you made was accurate.

MEASUREMENT OF STRONTIUM 90

Mr. LAIRD. Would it not be more correct to report strontium 90 on a per-gram-of-calcium basis?

Dr. CHADWICK. Well, in milk it certainly would. But the difficulty is that, if you do this in other substances which have low calcium content, then you would be reporting astronomical levels. For instance, if you reported strontium 90 levels in water, for instance, in terms of per gram of calcium content, since there is virtually no calcium in water, you would have virtually astronomical numbers of strontium 90 units.

So that is a tricky thing. In general, we prefer—and the Federal Radiation Council also uses this unit to report in micro-micro-curies of strontium 90, rather than in strontium units, in view of this difficulty of dealing with substances of low calcium content.

Mr. LAIRD. But you would have to admit that it would be more nearly correct?

Dr. CHADWICK. No, sir. A measurement of strontium 90 may be correct whether you say per gram of calcium or whether you simply say per milliliter or per gram or what have you. It is not a question of accuracy; it is a question of relating it to calcium.

But it is certainly correct to do it either way. But it would be, I think, misleading perhaps to the point of being inaccurate to report it per gram of calcium in low-calcium foods or in water.

STANDARDIZATION OF RADIONUCLIDE COUNT IN FOOD

Mr. LAIRD. In determining the infinitesimal amounts of radionuclides in food and milk, do replicates of the methods currently employed check closely?

Dr. CHADWICK. Yes, sir. We have a system of cross-checking from one laboratory to another, in which samples are split and determined in more than one laboratory. And we are now starting a system of standardization, where standardized samples are sent out and run in the different laboratories for a cross-check on quality control.

Mr. LAIRD. Is it not true, though, that in food and in milk, these samples have presently been plus or minus 50 percent?

Dr. CHADWICK. I am not exactly certain that I know what you mean. When determinations are reported in a scientific article, they generally report the value and then they give a plus or minus as their best estimate of the accuracy—or not accuracy, but the precision of the determination. But this——

Mr. LAIRD. Well, I understand that in some of the checks you were making you were getting variations as high as 50 percent.

Dr. CHADWICK. Oh, there have been isolated samples in which this has been the case, but I think most of our samples have checked quite closely.

But, after all, this may sound like a very large amount; but, actually, in this field the difference between, let us say 20 Strontium units and what would be 50 percent higher, 30 Strontium units, from a program point of view really does not make a great deal of difference. In terms of action, we are talking about the Federal Radiation Council ranges, which cover a range of a factor of 10. In other words, range 1 in Strontium would be zero to 20 micro-micro-curies per day; range 2 would be 20 to 200. So you see, a variation of 50 percent in a reading really may not be of very much significance in terms of the kinds of action that you would take as a result of this value.

(Discussion off the record.)

Mr. LAIRD. Go ahead.

Dr. CHADWICK. I think the significance of the values, after all, are what does one do about it. And whenever we get a determination which suggests a different kind of action, or even suggests consideration of a different kind of action, then we naturally check that value a good deal more carefully than we would ordinarily.

But, in general, the system of quality control which we have instituted is going to greatly reduce this. After all, we went through a tremendous expansion in the last 2 years in building these laboratories. But our quality control program now is more perfected than it was 6 months ago, and I suspect that we are going to get less of this variation from one laboratory to another.

Mr. LAIRD. You are taking steps so that the methods of analyzing the residual radionuclides are being standardized?

Dr. CHADWICK. Yes, sir.

Mr. LAIRD. Throughout these various products?

Dr. CHADWICK. Yes, sir. Both in terms of the kinds of procedures that are presently used plus quality control checks, that is the running of duplicate samples, and so on. Yes, we are most——

IODINE 131

Mr. LAIRD. You spoke a minute or so ago of Iodine 131, I guess it is.

Dr. CHADWICK. Yes, sir.

Mr. LAIRD. Which, as I understand it, would produce only a few days at a high level unless there is quite unlikely continuous testing, because this Iodine 131, as I understand it—and you correct me if I am wrong—has a very short life.

Dr. CHADWICK. Yes, sir.

Mr. LAIRD. Do you think it will ever be necessary to disrupt existing commercial methods of distribution because of Iodine 131 with the short life that it has?

Dr. CHADWICK. Let us back up for a moment and look at the significance of this short life. I think you put your finger on the significant point.

Yes, the material does have a short half life. But it is produced in relatively large quantities when testing activities go on. In fact, the levels of radioiodine that have occurred this fall have been higher in relation to the acceptable amounts than any other radionuclide, higher than strontium 90 for instance. And so the point is, although it is a short half life, if, as you said, tests go on for a long enough period of time, it is quite possible because of the continuous deposition of this material in the atmosphere to run at continuous levels relatively high. Indeed, for periods of 30 days or so, we were in the Federal Radiation Council range 3 which, if continued over a year, would have necessitated consideration, at least, of some things that might be done about it.

I might add that the British have faced this——

Mr. LAIRD. The British have backed up from their position, have they not?

Dr. CHADWICK. No, sir. The British have said that, if the levels of radio iodine in milk go above what would amount to an average of 130 micromicrocuries per day for a year, then they would take infants up to 1 year of age off whole milk and put them on dry milk. And they were apparently ready to do this. We talked to them about it.

Mr. LAIRD. There was a period of about 3 days when they did that this year. It created quite a stir in the headlines of the London papers.

Dr. CHADWICK. Well, I would expect something like that.

Mr. LAIRD. But I understood that the Prime Minister finally had to come out and clear up that question.

Dr. CHADWICK. Well, the Prime Minister did make some statements about it, but there was no change in their policy, though, Mr. Laird, of recommending at a level of 130, above a level of 130 for a year——

Mr. LAIRD. But it had to be for a whole year, as I understood.

Dr. CHADWICK. Yes, that is right. A projection for a year.

But if you had, for instance, a level of 500 for one-fifth of a year that would be the same as having a level of 100 for a year. So when you are running relatively high levels, you can approach this yearly limit in a relatively short time.

I would certainly agree with you that one must be exceedingly careful to make certain that when you look at a countermeasure, you think of it not only in terms of the amount of protection that would be achieved by that countermeasure, but also the risk that might result from the countermeasure. And I think you have some of these risks in mind.

MISLEADING INFORMATION ON RADIATION

Mr. LAIRD. The problem that I am concerned about is the misleading information that I think is circulated and must cause some of the correspondence that I receive.

I have an article before me, and it is just the opposite from the other articles that I exhibited a few minutes ago. Here is an article from the New York Times of May 28, 1961. The headline is: "Radiation Found To Aid Longevity." And it goes on and reports on certain experiments that had been made by a Dr. Hugh F. Henry. Have you seen that article?

Dr. CHADWICK. Yes. I am, in general, familiar with this work.

Mr. LAIRD. Now, you see, the article gives an entirely different interpretation to this whole question. What do you think about that article?

Dr. CHADWICK. Well, rather than comment on the article itself, I would like to comment on the research here.

The point is that when you get down into these very low levels, the amount of disease and disability and the variations which occur in the normal population are so great that it is very easy in any given experiment to have results which make it appear that radiation is either harmful or beneficial, depending upon the accidental results in the population.

So it is very difficult to evaluate these longevity effects at low-level radiation. I think the fact of the matter is now that we simply do not know, and we say this all the time. We have reasonable evidence to suggest that the genetic effects do indeed occur all the way down to these low levels.

But as to the somatic effects, whether the effects on exposed individuals occur down to these levels, we just do not know.

But the Federal Radiation Council emphasized that in the presence of a known effect from the genetic point of view and a question in the somatic effects, it is incumbent, from the point of view of health protection, to adopt the hypothesis that there may be some effect at these low levels and act accordingly. If later it is found that there are indeed no somatic effects at these low levels, we will be that much ahead; but, if the effects are shown to occur, then we will have been protecting against them all along.

So it is just a question of when you do not know for certain, you tend to be a little careful.

Mr. LAIRD. Well, and I think you should be. I think this work is most important. And if I seem to be critical, I was trying to bring out here some information which I think needs to be brought out and is not clearly understood by a lot of our people.

MILKSHED COUNTERMEASURES PROGRAM

Now, I noticed on page 75 of the justifications, you refer to a "milkshed countermeasures program." Is that the program that I mentioned; is that tied in with the program out of Beltsville?

Dr. CHADWICK. No. sir. The milkshed countermeasures would be actions which might be taken in the milkshed itself to alter the radioactivity content.

For example, we have found that in one milkshed, there are 2 dairy farms a matter of 2 miles apart, in which there was a difference in the strontium 90 content in the milk coming from those 2 dairies of almost a factor of 10. Again we get back to these factors.

The point is we need to look more in detail at what is accounting for these differences in the levels from dairies in much the same area, to find out: Is there somthing we can do in dairy B, let us say, to make its milk be the same as dairy A; that is, down by a factor of 10?

So it is this kind of effort that we would like to devote a good deal of time to.

Of course, we do know what some of the factors are now. We know, for instance, that in the situation of a low-calcium soil that, by the addition of calcium, there will be a reduction in the amount of strontium 90 taken up by the grass, simply because it would not be hungry for this mineral.

But it is this kind of thing that we want to do more work in—what are the factors which account for differences in the strontium 90 content?

Mr. LAIRD. That seems quite unusual, the information that you are giving us from this one milkshed.

Dr. CHADWICK. Yes, it is. We have some theories on it, but——

Mr. LAIRD. You want to go in and investigate this?

Dr. CHADWICK. Exactly. And see what is accounting for these differences, and are these factors over which we can have some control so that we can cut them down? This would be the most effective thing, if we could do something where milk is being produced by modifying dairy farming practices, this would be extremely effective.

Mr. LAIRD. That is all.

Mr. DENTON. Thank you very much, gentlemen. We shall come back at 10 tomorrow morning.

WEDNESDAY, FEBRUARY 7, 1962.

WATER SUPPLY AND WATER POLLUTION CONTROL

WITNESSES

GORDON E. McCALLUM, CHIEF, DIVISION OF WATER SUPPLY AND POLLUTION CONTROL

DR. ROBERT J. ANDERSON, DEPUTY CHIEF, BUREAU OF STATE SERVICES

PETER J. BERSANO, FINANCIAL MANAGEMENT OFFICER FOR ENVIRONMENTAL HEALTH PROGRAMS

HARRY L. DORAN, CHIEF FINANCE OFFICER

JAMES F. KELLY, DEPARTMENT BUDGET OFFICER

Object classification

[In thousands of dollars]

	1961 actual	1962 estimate	1963 estimate
11 Personnel compensation:			
Permanent positions	3, 337	5, 096	6, 333
Positions other than permanent	103	184	188
Other personnel compensation	17	7	9
Total personnel compensation	3, 457	5, 287	6, 531
12 Personnel benefits	489	715	820
21 Travel and transportation of persons	473	655	680
22 Transportation of things	57	105	123
23 Rent, communications, and utilities	131	279	330
24 Printing and reproduction	87	123	169
25 Other services	498	520	682
Services of other agencies	217	550	1, 260
Research contracts	175	405	526
Payment to—			
"Bureau of State Services management fund"	596	833	1, 027
"National Institutes of Health management fund"	27	35	43
26 Supplies and materials	244	322	414
31 Equipment	506	712	817
32 Lands and structures	5		
41 Grants, subsidies, and contributions	4, 998	8, 362	10, 185
Total obligations	11, 960	18, 903	23, 607

Personnel summary

	1961 actual	1962 estimate	1963 estimate
Total number of permanent positions	636	936	1, 099
Full-time equivalent of other positions	16	27	31
Average number of all employees	594	826	1, 033
Number of employees at end of year	679	960	1, 147
Average GS grade	7. 5	7. 8	7. 9
Average GS salary	$6, 557	$6, 740	$6, 687
Average salary of ungraded positions	$4, 993	$4, 811	$4, 690

Program and financing

[In thousands of dollars]

	1961 actual	1962 estimate	1963 estimate
Program by activities:			
1. Grants:			
(a) Research	2, 106	2, 462	3, 285
(b) Fellowships		100	300
(c) Training		700	1, 100
(d) Control programs	2, 892	4, 800	5, 000
(e) Demonstration		300	500
Total, grants	4, 998	8, 362	10, 185
2. Research, training, technical services, and enforcement	6, 902	10, 440	13, 422
Total program costs [1]	11, 900	18, 802	23, 607
Change in selected resources [2]	60	101	
Total obligations	11, 960	18, 903	23, 607
Financing:			
Comparative transfers to or from (−) other accounts	−11, 960	27	
Unobligated balance lapsing		1, 337	
New obligational authority		20, 267	23 607
New obligational authority:			
Appropriation		20, 328	23, 607
Transferred to:			
"Operating expenses, Public Buildings Service," General Services Administration (75 Stat. 353)		−27	
"Salaries and expenses, Office of the Surgeon General" (42 U.S.C. 226)		−34	
Appropriation (adjusted)		20, 267	23, 607

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[1] Includes capital outlay as follows: 1961, $471,000; 1962, $648,000; 1963, $817,000.

[2] Selected resources as of June 30 are as follows: Unpaid undelivered orders, 1960, $188,000; 1961, $248,000 1962, $350,000; 1963, $350,000.

Mr. Fogarty. The committee will come to order.

We have before us this morning the request for the water supply and water pollution control program. Mr. McCallum, I thought Mr. Quigley was going to justify this appropriation.

Mr. McCallum. Mr. Quigley is ill. His office called this morning and said he was sick in bed. He did expect to be here.

Mr. Fogarty. Doesn't he have responsibility for this program?

Mr. McCallum. Yes, sir. The Secretary issued a news release a few months ago. He indicated in that statement Mr. Quigley's responsibilities in this program.

Mr. Fogarty. It is too bad he is not here this morning. We always like to have the official who is responsible for a program justify its budget.

Mr. Kelly. He had not intended to be the principal witness, Mr. Chairman. The Public Health Service has this responsibility as the administrator of the program.

What the Secretary did, was retain to himself the powers under the act for the initiation of an enforcement action, for the issuance of policies and regulations, and for the chairmanship of the Water Pollution Control Board. The Secretary delegated to the Surgeon General the responsibility for the administration of the program, including the waste treatment construction program, the research, technical assistance, and operations within the guidelines of the regulations and policies issued by the Secretary.

He named Assistant Secretary Quigley as his assistant to carry out those responsibilities that he had retained to himself, and also named Assistant Secretary Quigley as the Chairman of the Water Pollution Control Board to review all enforcement actions; to issue the policies and regulations governing the program; and keep himself informed of all activities in connection with the program. Mr. Quigley was to consult with the Surgeon General on the steps which would be taken to improve the Nation's water supply and minimize water pollution as he saw it, and to carry out relationships with other Government agencies involved in these programs.

Mr. Fogarty. When authority for a program is specifically delegated to someone, we generally like to hear from that person.

Mr. Kelly. He did intend to be here and to be available for the discussion of his role and the proposals in connection with water pollution, but not as the principal witness.

Mr. McCallum is the administrator of the program, and we planned to have him serve as the principal witness. The only reason Mr. Quigley isn't here is because he is ill today.

Mr. Fogarty. Go right ahead, Mr. McCallum.

General Statement

Mr. McCallum. Mr. Chairman and members of the committee, I have a prepared statement which I would like to file for the record and, with your permission, I would like to summarize this statement.

Mr. Fogarty. We will file that in the record and you go right ahead.

(The statement follows:)

STATEMENT BY CHIEF, DIVISION OF WATER SUPPLY AND POLLUTION CONTROL, ON "WATER SUPPLY AND WATER POLLUTION CONTROL, PUBLIC HEALTH SERVICE"

Mr. Chairman and members of the committee, since the last time this appropriation came before you, the Federal Water Pollution Control Act Amendments of 1961 has been enacted. This legislation has increased the Federal Government's responsibilities and given greater urgency to the joint Federal-State programs in water pollution control. A supplemental appropriation was provided in fiscal year 1962, to begin implementation of the new activities authorized by this legislation.

The amendments follow closely the pattern urged by the President's message of last February on natural resources. This appropriation is directly affected by amendments that—

(1) Extend to 1968 and increase to $5 million authorization for grants to State and interstate water pollution control agencies;

(2) Give the Secretary of Health, Education, and Welfare specific responsibility for determining storage needs in Federal reservoirs to provide water for streamflow regulation for the purpose of water quality control;

(3) Broaden the justification and strengthen the enforcement procedures; and

(4) Intensify and broaden research in water pollution.

This 1963 budget request is $23,607,000, an increase of $4,704,225 over the 1962 operating budget.

Thirty-five percent, or $1,660,000, of this increase will permit scheduled development of the comprehensive program for control of water pollution in the Great Lakes and Illinois Waterway drainage basins. This project was begun in fiscal year 1961.

The provision in the 1956 act for collection and dissemination of data on chemical, physical, and biological water quality has been partially implemented. By the end of 1962, it is anticipated that 125 national water quality network stations will have been established. An increase of $121,000 is required for the full year's operations and laboratory support for the new stations installed in 1962.

Another 17 percent of the increase requested, $823,000, is for research grants to universities. The number of requests for these grants is growing rapidly. The remaining $2,100,225 of the increase in this appropriation is distributed among activities authorized by the new amendments and started with the 1962 supplemental appropriation. These include grants for training, grants to State and interstate water pollution control agencies, and grants for demonstrations to help bridge the gap between research and broad application of research findings. Increases related to last year's legislation are also requested for direct operations in comprehensive programs for water pollution control, enforcement, research, and technical service.

TRAINING GRANTS AND FELLOWSHIPS

Increases of $400,000 and $200,000 respectively are provided for training grants and research fellowships, bringing them to totals of $1,100,000 and $300,000. The impact of the 1961 amendments on the already short supply of engineers and scientists needed in water pollution control has made even more urgent the need for specialized training in these categories. The very real and pressing challenges of the many-sided water pollution control problems have been overshadowed by the more dramatic nuclear and space scientific problems of our times. The attraction of such fields have aggravated an already acute manpower problem in the water pollution field. We hope through long-term support of these training grants, begun last year with supplemental funds, to attract a growing number of able people to the unusually intricate and ever-changing tasks of protecting our waters from the effects of our own industrial and urban growth.

WATER POLLUTION CONTROL PROGRAM GRANTS

The grants for State and interstate water pollution control programs are budgeted at $5 million for 1963. This is the amount authorized by the amendments of 1961, in which the authorization was increased from the $3 million level and extended from 1962 through 1968. The $4.8 million that was appropriated in 1962 is supporting significant expansion and broadening of State programs. In many States, the new activity is concentrated on immediate practical problems, promising new hopes of early improvement in many situations. For example, Mississippi and Delaware are expanding efforts to protect their shellfish from pollution. West Virginia is developing plans for rehabilitation of strip-mining areas, to reduce acid pollution of its streams. Other States are expanding their professional staffs and establishing field offices and laboratories to provide technical know-how closer to the sites of their everyday problems. The response of the States and the manner in which thy are using the increased grants, are encouraging evidence of the growing public concern about water quality.

DEMONSTRATION GRANTS

A need for demonstration grants to support field projects to control water pollution has been manifested by the large number of requests which began to come in from many parts of the country even before funds for such grants were available. Many scientists believe this step between research and practical application has been too long neglected.

The 1962 supplemental appropriation provided $300,000 for demonstration grants. These grants are awarded to support projects that demonstrate application of improved methods for solving water pollution problems. In general, these projects will require grant support for 3 years.

The widespread and very practical interest in these grants comes from organizations willing to finance major portions of demonstration projects they are proposing. Like the State response to program grants, this is another indicator of the strong and growing public desire to do more about water pollution.

It is estimated that the $300,000 appropriated in 1962 will initiate support for six demonstration projects. The second year requirement for grants to these projects is expected to total $450,000 of the $500,000 requested in this budget. One new project will be initiated in 1963.

COMPREHENSIVE PROGRAMS FOR WATER POLLUTION CONTROL

An increase of $1.6 million is devoted in this budget to further development of the comprehensive water pollution control program for the Great Lakes and Illinois Waterway drainage basins. The investigations of existing pollution in the sanitary and ship canals and the upper reaches of the Illinois Waterway, which have been the principal work of the past 2 years, will be substantially completed in 1963. Already specific technical recommendations for control of pollution in and near Chicago have been given to the Department of Justice. These will be used in connection with the litigation on control of Lake Michigan water and related questions that are now before the Supreme Court. In 1963, studies, also, will begin on the movement of pollution in Lake Michigan, and surveys of sources of pollution will begin in Wisconsin, Michigan, and Indiana.

Projects now in progress on Delaware Bay and the Susquehana River-Chesapeake Bay area will be expanded, largely with resources made available by the phasing out of the Arkansas-Red Rivers project, as the latter approaches completion. The Arkansas-Red Rivers work already has been intrumental in reducing by several thousand tons per day the flow of salts into the streams of Oklahoma and Texas.

The work on the Columbia River Basin will continue at its present level. No new comprehensive water pollution control river basin projects will be initiated in 1963.

The remaining $100,000 of the increase for pollution control program will be utilized to conduct flow regulation and storage studies. Under the new amendments, recommendations on storage of water for streamflow regulation to control water quality must be made for all planned Federal reservoirs. The law authorizes provision of regulation of streamflow to dilute pollution that is not susceptible to other means of control. The need for such storage eventually will be studied for Federal water resource development projects already authorized, that have been estimated to cost more than $20 billion, as well as for future projects. This increase will provide $100,000 to begin work in 1963 on the flow regulation requirements of Federal water resource projects in river basins where comprehensive pollution control programs have not yet been started.

For the purpose of developing comprehensive programs for water pollution control, the country has been divided into 23 major drainage areas. For each area a water pollution control program must be an integral and complementary part of plans to be produced by other organizations—Federal, State, local, and industrial—for water resource development and water utilization. Completion of such comprehensive programs for water resource development and water pollution control by 1970 was urged by the Senate Select Committee on National Water Resources in its report of January 30, 1961, and the recommendation was accepted by the President in his message on natural resources of February 23, 1961.

ENFORCEMENT

Federal jurisdiction for enforcement of water pollution abatement was substantially broadened by the 1961 amendments. An increase of $315,000 is proposed in this budget to help provide for the increased workload that results from the new legislation.

Under the 1956 Federal Water Pollution Control Act, the Federal enforcement jurisdiction was limited to sites of potential interstate pollution. The amendments of 1961 increased manyfold the number of bodies of water and reaches of streams which are potentially subject to Federal enforcement by extension of the Federal jurisdiction to navigable waters.

It is our policy to encourage and provide technical assistance to all reasonable voluntary and State directed abatement action. Formal Federal proceedings are begun under the enforcement section of the Federal Water Pollution Control Act only when all other efforts have failed.

Fifteen interstate water pollution situations have reached the stage of formal proceedings under the act, since its passage in 1956. Twenty-three States and the District of Columbia have participated in these actions, which have involved more than 250 cities and 250 industrial plants. Agreements have been reached on time schedules for abatement actions involving expenditures of more than $500 million for waste treatment facilities to clean up more than 4,000 miles of streams

There is no doubt that Federal enforcement proceedings will continue to be applied to cases of interstate pollution. These cases can crystallize rather suddenly as was evidenced this year when an interstate conference became necessary in connection with pollution of the Raritan Bay, which involved New York and New Jersey.

Requests for conferences on abatement of intrastate pollution have recently been made by the Governors of the States of Washington and Michigan. These requests, and informal queries reaching our regional offices, indicate that States and cities may be expected to call upon the broadened authority given to the Secretary by the 1961 amendments.

A report of progress is in order on our project for control of water pollution originating in Federal installations which was begun at the direction of the President in 1960. The inventory of waste discharges and treatment by Federal facilities is being completed in 1962. In 1963, we expect to begin working on a case-by-case basis with other Federal agencies to make sure that the Federal Government, as a proprietor, will be seeking the same high goals in water pollution control that are being established for others.

RESEARCH

The 1961 amendments direct the Secretary to develop and demonstrate under varying conditions, including basic and applied research, studies and experiments on—

(1) Methods and procedures for evaluating the effects on water quality and water uses of augmented streamflows to control water pollution not susceptible to other means of abatement;

(2) Improved methods and procedures to identify and measure the effects of pollutants on water uses, including those pollutants created by new technological developments; and

(3) Practicable means of treating municipal sewage and other waterborne wastes to remove the maximum possible amounts of physical, chemical, and biological pollutants in order to restore and maintain the maximum amount of the Nation's water at a quality suitable for repeated reuse.

The act authorizes annual appropriations of $5 million up to a total sum of $25 million for these three specific research purposes.

This legislative directive is aimed squarely at problems recognized by the President and by the Senate Select Committee on National Water Resources. In his 1961 natural resources message the President said:

"Pollution of our country's rivers and streams has—as a result of our rapid population and industrial growth and change—reached alarming proportions. To meet all needs—domestic, agricultural, industrial, recreational—we shall have to use and reuse the same water, maintaining quality as well as quantity * * * .

"* * * I propose an intensive and broadened research effort to determine the specific sources of water pollution and their adverse effect upon all water uses; the effects upon the health of people exposed to water pollution; and more effective means of preventing, controlling, or removing the contaminants—including radioactive matter—that now pollute our rivers and streams so that the water may be safely used."

In its recommendations, the Senate select committee said:

"* * * The area which the committee's studies show to be the most urgently in need of attention is in treatment of sewage and industrial wastes. Under present methods water for dilution of effluent from waste treatment plants may be one of the largest demands upon our water resources, and known techniques for dealing with the problems are lagging behind our needs."

Present waste treatment methods remove only 40 to 60 percent of the pollutants and many of the new contaminants—some highly toxic—are not affected at all. Furthermore, new technologies are producing new pollutants for which there are neither procedures for identification, nor methods of measuring their pollutional effects. Maintenance of water quality through use of dilution water stored for this purpose is becoming increasingly necessary. A better understanding of methods and procedures for evaluation of dilution water requirements and potential benefits is needed to make the best possible recommendations on storage needs for regulation of streamflows.

All three of these problems singled out in the amendments of 1961 must be solved to keep the waters of the Nation safe for the repeated reuse, which is the only way in which the fixed supply of water can satisfy the constantly growing demand.

In 1962, research contracts are being negotiated with universities, research institutions, and industry for feasibility tests on physical and chemical processes that may lead to entirely new waste treatment methods. Research is underway at our Taft Engineering Center in Cincinnati to develop improved methods and procedures for identifying and measuring the effects of pollutants on water uses.

In 1963, the increase of $279,225 will expand the research directed by the 1961 amendments. We expect to increase the number of contract feasibility tests for leads to new, more effective waste treatment processes. Further exploration of the most promising leads of 1962 will be made.

Some expansion will be made in research on new and improved procedures for identifying and measuring new pollutants, and their effects on water uses. Methods and procedures will be developed for investigations of the use of augmented streamflows to control water quality.

In 1963, planning for a much-needed major research program in aquatic biology will be undertaken. Our goal in this important research is to determine the effects of pollutants on both marine and freshwater fish and other aquatic life, and on their environment. Such knowledge is urgently needed to control the growing damage to sport and commercial fisheries. It is needed, also, to enable us to make better use, in all pollution control of these sensitive biological indicators which generally are less tolerant of pollution than is man.

TECHNICAL SERVICES

Our budgets for construction grant services and other technical services include increases of $220,000 and $140,000 for the technical services necessary to carry out the grant-in-aid authorizations contained in the amended act. The other technical assistance activities will be continued at their current levels. This includes two field study projects of national concern. One involves investigation of the health effects of recreational use of municipal water supply reservoirs. The second involves investigation of the performance in our streams of pesticidal chemicals that reach them in various ways after being applied to agricultural, suburban, and forest lands. This study holds great interest, both public health and economic, for municipal water works and health officials, as well as for conservationists, farmers, and sportsmen, throughout the country.

EFFECT OF RECENT LEGISLATION

Mr. McCallum. The passage last July of the amendments to the Federal Water Pollution Control Act was a very significant event in the growth of the nationwide campaign against water pollution. The amendments broadened, intensified, and accelerated the activities authorized by the Federal Water Pollution Control Act of 1956. They strengthened that act's cooperative approach, which combines the efforts of Federal, State, and local governments, industry, and scientific institutions.

Both parts of the twofold attack were reinforced: The immediate rollback of existing pollution, and prevention of future pollution.

Hearings on the 1961 amendments reflected the same widespread and forceful public interest that was evident during the development of the 1956 act. Professional, civic, conservation, and many other organizations supported greater control of water pollution. The technical and scientific communities of the Nation also showed themselves increasingly concerned with the problem.

Supporting a greater attack on water pollution, in addition, were the National Conference on Water Pollution, held in December 1960; the report of the Senate Select Committee on National Water Resources, issued in January; and the President's message on natural resources of February 23, 1961.

I would like now to list important features of the new legislation—this being the first time we have been before this committee since this legislation was enacted. These amendments—

(1) Increase from $50 million to $90 million grant authorizations for waste treatment works construction for 1963. This authorization will increase to $100 million in 1964 and each of the 3 years following;

(2) Extend to 1968 and increase to $5 million the authorization for grants to the State and interstate water pollution control agencies;

(3) Increase the jurisdiction and strength of Federal enforcement;

(4) Give the Secretary of Health, Education, and Welfare specific responsibility for determining storage needs in Federal reservoirs to provide water for streamflow regulation for the purpose of water quality control;

(5) Direct intensified research on the principal deterrents to the repeated reuse of streamflows;

(6) Direct studies of the quality of the waters of the Great Lakes and of alternate means of solving pollution problems in these waters; and

(7) Direct establishment of seven or more field laboratories and research facilities, which will bring specialized scientific and technical resources closer to the sites of water pollution problems throughout the country.

BUDGET PROPOSALS, 1963

The "Water supply and water pollution control" appropriation request for $23.6 million includes increases aggregating $4.7 million.

Of this increase, $1.6 million is for the Great Lakes-Illinois Waterway comprehensive water pollution control program. An increase of $823,000 is requested for research grants, and an increase of $121,000 is requested for the national water quality network.

The remaining $2.6 million of the increase is requested for activities authorized by the Water Pollution Control Act, as amended, including grants for training, grants for State and interstate water pollution control agencies, and grants for demonstrations to help bridge the gap between research and broad application of research findings. Increases related to last year's legislation are also requested for direct operations in comprehensive programs for water pollution control, enforcement, research, and technical services.

As we have suggested in earlier years, we believe that the Federal Water Pollution Control Act provides for a well-rounded Federal-State cooperative program, and that a balanced and orderly implementation of all authorizations provided in the statute is necessary. The 1961 amendments to the Federal Water Pollution Control Act have extended and improved the act of 1956. These 1963 budget proposals would continue our progress.

Mr. Chairman, I shall be glad to give more details on any aspects of the budget that the committee may wish to discuss.

HOUSE PASSAGE OF THE WATER POLLUTION CONTROL BILL

Mr. FOGARTY. Was there a record vote on this bill in the House last year?

Mr. McCALLUM. You mean a rollcall?

Mr. FOGARTY. Yes.

Mr. McCALLUM. There was in the House.

Mr. FOGARTY. Do you remember by how many votes it passed?

Mr. McCALLUM. I can supply that. I don't have that in my mind at the moment.

(The requested information follows:)

NUMBER OF VOTES BY WHICH THE 1961 AMENDMENTS TO THE WATER POLLUTION CONTROL ACT PASSED THE HOUSE

The House registered a rollcall vote of 307 ayes to 110 nayes in passing H.R. 6441. In amending this bill by substituting the amended text of S. 120, the Senate did so by voice vote. No subsequent rollcall votes were recorded in either House on the approval of the conference committee recommendations.

Mr. FOGARTY. Your appropriation for 1962 is $20,328,000, and your request for 1963 is $23,607,000, an increase of $3,279,000.

EFFECT OF RESERVES ON 1962 PROGRAM

You have a reserve of $1,337,000 from the 1962 appropriation. Is that right?

Mr. McCALLUM. That is correct, Mr. Chairman.

Mr. FOGARTY. Tell us what effect this reserve had on your program for 1962.

Mr. McCallum. We had, Mr. Chairman, as you know, a supplemental appropriation in another committee. That permitted us to begin the implementation of the amendments that were passed last year—passed by a very substantial majority, I am sure, as you indicated. I think we have made a good start.

States have been making good use of the State program grants—$1.8 million. We have gotten a very fine response from the universities in regard to research fellowships, training grants, and demonstration grants, which were implemented for the first time.

Mr. Fogarty. Are you trying to tell the committee now that Congress gave you too much money for 1962?

Mr. McCallum. No, sir.

Mr. Fogarty. What happened because of this reserve of $1,337,000? What did you have to slow down or stop because of this reserve?

Mr. McCallum. Specifically, the reserve of $1,337,000 was applied partly to the grant fund and partly to operating funds—$408,000 to grants, $929,000 to direct operations.

Mr. Fogarty. So this reserve has had a bad effect on your program in 1962.

Mr. McCallum. Well, we could do more with more funds.

Mr. Fogarty. If you are not any more enthusiastic about it than that—if you can take a reserve of $1,337,000 and not be bothered about it—maybe we can cut back your 1963 appropriation.

Mr. McCallum. In preparing our budget proposals, we follow closely the authorizations that we have in legislation. The Federal Water Pollution Control Act differs from some legislation in that it is explicit. Congress has spelled out in detail precisely what is to be done.

Mr. Fogarty. You mean none of this reserve was applied to the appropriations that came about as a result of the legislation passed by Congress last year?

Mr. McCallum. Yes, it was. It was distributed throughout the program. Specifically with respect to the reserves, $208,000 was applied to research grants, and the effect of this was that it reduced the number of grants that would be made this year by 10; 10 fewer research grants.

To the training grants, $200,000 was applied, which would reduce by eight the number of training grant projects to universities that could be made out of this appropriation. That accounts for $408,000 of the grant program in reserve. Against the comprehensive programs, such as the Great Lakes project, $200,000 was applied.

Mr. Fogarty. You can spell them out and put them in the record in detail.

(The requested information follows:)

APPLICATION, BY ACTIVITY, OF THE ADMINISTRATIVE RESERVE IN 1962 AND ITS EFFECT ON THE PROGRAM

The $1,337,000 reserve from funds appropriated for 1962 includes $408,000 from grant funds and $929,000 from direct operations. The reserve was applied to the programs in this appropriation as follows:

Grants	$408,000
Research	208,000
Training	200,000
Operations	929,000
Enforcement	500,000
Comprehensive program	200,000
Research	229,000
Total	1,337,000

Research grants

The reserve in research grants amounts to $208,000. This will result in funding 10 fewer grants this year than could be funded if the reserved funds were available.

Training grants

The reduction in training grants is $200,000. The original appropriation of $900,000 would have assisted some 36 schools or departments to provide graduate training for 108 students. The $700,000 now remaining will fund grants for about 28 schools and provide graduate training for approximately 80 students.

Enforcement

The 1961 amendments to the Federal Water Pollution Control Act have substantially increased the authority and responsibility of the Department for abating pollution of the country's water bodies by broadening the scope of this authority to include, in addition to interstate streams, all navigable water bodies.

In order that the Department may properly prepare the cases on which enforcement actions are to be instituted, it is necessary that adequate data be accumulated, collated, analyzed, and set out in reports for use as the basis of enforcement actions.

The reserve of $500,000 and 33 positions would materially reduce the enforcement activity which could have been conducted under the provisions of the expanded act. It has resulted in the curtailment of field and laboratory work needed for reconnaissance surveys and reports on specific pollution situations. This reduction will also retard progress in 1962 on two enforcement investigations that have been initiated under the 1961 amendments. These investigations were undertaken on the basis of requests of the Governors of Michigan and Washington to the Department of Health, Education, and Welfare for Federal enforcement action.

Comprehensive programs

The $200,000 that has been placed in reserve would have financed investigations leading to the advice which must be provided to other Federal agencies concerning storage in reservoirs for streamflow regulation to control pollution that is not susceptible to other abatement. Consideration of the need for and value of such storage is a new and extensive responsibility included in the 1961 Amendments to the Federal Water Pollution Control Act. To date we have received over 50 requests for flow regulation recommendations from the Departments of the Interior and the Army. Delays in the investigations that are necessary to comply with such requests will delay the completion of plans for these water-resource projects.

Direct research

The reserve of $229,000 in the 1962 appropriation will retard work on studies directly related to improvement of treatment methods to permit repeated reuse of waters flowing in our streams. Feasibility studies of the application of processes new to waste treatment will be deferred. There will be a delay in studies on development of methods and procedures for evaluating the effects on water quality and water uses of steamflow regulation. Studies to improve methods for identification and measurement of the effects on water uses of the newer pollutants of industrial origin will also be delayed. Appropriations up to $5 million were specifically authorized in the Federal Water Pollution Control Act Amendments of 1961 for these studies.

INCONSISTENCY OF RESERVE

Mr. Fogarty. I think it is another good example of off-again, on-again programing, You didn't request this supplemental appropriation until August of last year. Within weeks of the time you received it a reserve of over a million dollars was taken out by the Secretary. Now you are back asking for a big increase again.

So you were put in a position of coming to Congress asking for supplemental funds; and at practically the same time your superiors were thinking about making a cut.

This is also, I think, a glaring example of repudiating the action of Congress. I suppose the Secretary and the Bureau of the Budget would have some other answer to it. But I think it is a direct slap at Congress because of the substantial margin by which that bill passed. Then the appropriation was cut back to $1,337,000 within a few weeks of the action of Congress and the bill being signed by the President.

TRANSFERS TO THE SURGEON GENERAL'S OFFICE

What is being transferred to Surgeon General's Office?

Mr. Bersano. This amount represents part of the cost of the Chief Professional Engineer's Office, which was an organization transferred to the Office of the Surgeon General.

Mr. Fogarty. How much?

Mr. Bersano. $34,000.

ACCOUNTING FOR NONRECURRING EXPENSES

Mr. Fogarty. Mr. McCallum, I don't know whether you should answer this question or whether Mr. Kelly should. On page 99 you show an increase for 1963 to annualize new positions, $566,000. Almost always there are also nonrecurring costs in connection with new positions, especially equipment.

When the Food and Drug Administration and the Vocational Rehabilitation people were up here, they also had increases for annualizing new positions; but they showed a deduct item for nonrecurring expenses.

In the justifications for the Food and Drug Administration, their deduct item amounts to almost $1,000 per new position. You don't show one dollar. This is true throughout the Public Health Service.

We had this some problem 3 or 4 years ago. I thought this had been straightened out. Why don't you have any decrease shown like the other agencies in the Department of which we have given examples—the Food and Drug Administration and the Office of Vocational Rehabilitation?

I don't know whether you should answer this or whether Mr. Kelly should, or Mr. Doran.

Mr. Bersano. In 1963 we have an increase for equipment; and while there are some items in equipment related to the new program that started in 1962 which are nonrecurring, the 1963 increased equipment needs offset this reduction.

Mr. Fogarty. That is not a good answer, may I say, because the Food and Drug Administration has the same thing. They have increases for equipment, but they show what they need increases for, and show where there are nonrecurring items and subtract these out to come to a net figure. All you show are the increases.

Mr. Kelly. We regret that we didn't do it, Mr. Chairman. I wonder if we could submit at this point in the record the gross equipment amount to show how much we need for increased activity, offset by how much is nonrecurring cost, and put it in the same way we did for the Food and Drug Administration?

Mr. Fogarty. Don't you think that is the proper way to do it?

Mr. Kelly. Yes; I do.

Mr. Fogarty. I thought we had this straightened out 3 or 4 years ago.

Mr. Kelly. I thought the way it was shown in Food and Drug was preferable. We can make an insert in the record and do the equivalent.

(The information volunteered follows:)

Schedule of nonrecurring equipment funds in 1962 related to expanded equipment requirements in 1963 by program area

Nonrecurring equipment in 1962	$535, 200
Offset by increases in equipment costs in 1963 in the following program areas:	
Comprehensive program for water pollution control	161, 200
Enforcement of water pollution control	130, 000
Research	129, 000
Collection, analysis, and dissemination of basic data	115, 000
Total	535, 200

GROSS REPORT RECOMMENDATIONS

Mr. Fogarty. The Gross committee devoted quite a bit of their report to your activities, Mr. McCallum. What were the significant recommendations?

Mr. McCallum. The No. 1 recommendation—and I think the committee should be commended for defining and expressing it—is that all aspects of water pollution should be emphasized; and the No. 2 recommendation was that the responsibilities for this activity should be explicit, clearly identified and carried on in a vigorous manner. They propose that, as to personnel, we acquire broader specialists in this field than we have in the past.

The committee stated that the regional laboratories authorized by Congress last year should be provided and staffed to furnish specialized services to the States in the areas affected and specified in the act.

Mr. Fogarty. But you haven't paid much attention to it, have you?

Mr. McCallum. We take recommendations of this kind very seriously.

Mr. Fogarty. The budget doesn't show it.

Mr. McCallum. The Gross committee report proposed a Water Quality Research Center in addition to the field laboratories to do more basic, fundamental work; and mentioned toxicology and pharmacology studies as activities about which we are doing very little at this time.

They emphasize training, and they particularly stress a substantial buildup in research, maintaining the ratio of about 1 to 4 of intramural to extramural research; and further that we do more—all jurisdictions do more—about water pollution control with the knowledge we now have.

RELATIONSHIP OF THE BUDGET TO THE GROSS REPORT

Mr. Fogarty. What would your budget for 1963 be if it were geared to this report, and what would it be by 1970?

Mr. McCallum. The best information I have from an outside group—this is, I should say, from the Water Pollution Advisory Board appointed by the President, which did make specific recommendations a year and a half ago——

Mr. Fogarty. That isn't the question I asked. I am talking about the Gross report recommendations. What would your budget for 1963 be if it were geared to this report? Do you have that here?

Mr. Bersano. No, sir. We will have to supply that for the record.

Mr. Fogarty. All right. Supply these figures for 1963, the programs the funds would provide for and a statement of how important they are; and also what the budget would be by 1970 if you followed the recommendations of the Gross report.

(The requested information follows:)

Summary of Budgets Required To Comply With Recommendations of the Subcommittee on Water Supply and Pollution Control of the Committee on Environmental Health Problems (Gross Committee Report) for 1963 and for 1970

The Subcommittee on Water Supply and Water Pollution Control stated a specific budget requirement in 1970 of $100 million for construction grants, $36 million for operating grants, and $39 million for direct operations. While the subcommittee report did not indicate the requirements for the various activities of the water supply and pollution control program, the following table, together with the supporting data for each activity, shows the funds which would be required in 1963 to provide an orderly and balanced expansion to the total levels recommend for 1970 for a program to carry out the objectives recommended by the subcommittee.

Committee on Environmental Health Problems (the Gross Committee) summary of budgetary needs as cited by the Subcommittee on Water Pollution Control

Activity	1963	1970
Construction grants	$90,000,000	$100,000,000
Operating grants	15,650,000	36,000,000
Research	6,400,000	20,000,000
Fellowships	300,000	1,000,000
Training	1,300,000	4,000,000
Demonstration	2,650,000	6,000,000
Control	5,000,000	5,000,000
Direct operations	25,296,000	39,000,000
Comprehensive programs	7,500,000	7,500,000
Enforcement	3,620,000	5,900,000
Research	8,050,000	11,600,000
Basic data	2,260,000	6,400,000
Technical services	2,260,000	5,700,000
Construction grants services	1,606,000	1,900,000
Total	[1] 130,946,000	175,000,000

[1] The subcommittee also recommended that presently authorized regional laboratories be built and staffed to provide field services and to meet the specialized needs of individual geographical regions. For 1963 the water pollution program estimated that $8,000,000 will be needed to construct 4 of these laboratories.

In 1963, 1,300 positions would be needed, and 2,700 would be needed in 1970.

Construction grants

The report indicated the following as the objective for increased municipal waste treatment construction:

"To stimulate municipal treatment construction to a level commensurate with existing and future needs, including Federal grants-in-aid."

The report also indicated that "A large backlog of sewage * * * waste treatment construction has accumulated through the years. Last year, the Conference of State Sanitary Engineers completed a comprehensive survey of municipal waste treatment needs as of December 31, 1960, which is summarized * * *."

National summary backlog of municipal waste treatment needs

Type of need	Number of communities	Population served
New plants	4,136	22,997,547
Enlargements	560	12,729,981
Additional treatment	431	6,513,197
Total	5,127	42,240,725

"The estimated cost of the above municipal waste treatment needs is $2 billion. Elimination of this backlog in 10 years together with needs imposed by population growth and obsolescence of existing works during this period, will require an average annual expenditure of $600 million, 40 percent higher than is being spent by municipalities now."

The Gross committee did not indicate fiscal year 1963 budget needs for construction grants. The Federal Water Pollution Control Act, as amended, authorizes appropriations of $90 million for fiscal year 1963, and $100 million annually for fiscal years 1964 through 1967. The report indicated a need for construction grants of $100 million in 1970.

Research grants

The objective for research grants as stated by the report is "to support research by others in a wide variety of basic and applied problems of water supply and pollution control, to develop a nationwide interest among many scientific disciplines in conducting studies of this nature, and to encourage investigators to undertake research in neglected areas."

These grants, awarded to support studies by scientists and engineers are stimulating a nationwide investigation of many unsolved problems in water supply and pollution control. The funds will support efforts related to major water pollution control problems.

A budget of $6,400,000 would support 290 grants in 1963. A budget of $20 million would be needed in 1970.

Research fellowships

"To complement the research grants and direct research operation programs by the award of research fellowships to support outstanding graduate scientists and engineers in the conduct of independent research needed for water supply and pollution control" is the objective for research fellowships stated by the report. These fellowships support specialized studies by individuals to increase the number of scientists and engineers qualified to carry on independent research in water supply and water pollution control.

A budget of $300,000 would support 50 fellowships in 1963. A budget of $1,000,000 would be needed in 1970.

Training grants

The stated objective for training grants is "to award training grants to institutions to support the development and expansion of teaching programs at an advanced level for training research and administrative manpower required in the operation of water supply and pollution control programs."

These grants support new and expanded training programs in a variety of departments, encourage multidiscipline teaching concepts, and augment and improve faculties. A budget of $1,300,000 in 1963 would support 38 training grants. In 1970, a budget of $4 million would be needed.

Demonstration grants

The reports cites the objective for demonstration grants as—

"To award demonstration grants and contracts to public and private agencies to support field investigations and studies of an applied or developmental nature. These awards provide the necessary step between the completion of research investigations and the direct application of results to use, and thus broaden the water pollution control effort."

These grants are designed to evaluate the application of research findings, and to expedite incorporation of new knowledge into routine water supply and pollution control practices.

A budget of $2,650,000 would support 50 grants in 1963. For 1970, a budget of $6 million would be needed.

State and interstate water pollution control program grants

An objective cited by the report is—

"To strengthen State water supply and pollution control programs to enable them to meet adequately their responsibilities, including grants-in-aid."

These grants have substantially strengthened State and interstate water pollution control activities. The 1963 budget of $5 million is in accordance with the Federal Water Pollution Control Act as amended in 1961. Of this, $4,700,000 is requested for State allocation, and $300,000 for allocation to interstate agencies. A budget of $5 million would be needed in 1970.

Comprehensive programs

The report indicated as the objective for comprehensive programs, "to develop and maintain comprehensive water pollution control programs for the major drainage basins of the Nation and their tributaries." The importance of these programs, was also recognized and action urged by the National Conference on Water Pollution and the Senate Select Committee on Water Resources.

A 1963 budget of $7,500,000 would allow (1) initiation of three new comprehensive projects in the Upper Ohio River Basin, the Rio Grande Basin, and the river basins of Alaska; (2) restoration of projects of the Great Lakes-Illinois River Basin and the Columbia River Basin to their original schedule; (3) expansion of projects in the Chesapeake-Susquehanna River Basin (where acid mine drainage is a major problem) and the Delaware River estuary past the exploratory operations stage; (4) addition of personnel and other resources to areas where they are needed to provide advice to other Federal agenices concerning storage in reservoirs for stream regulation for water quality control.

A budget of $7,500,000 would be needed in 1970.

Enforcement

The objective for "protection of water quality through enforcement activities" as stated in the subcommittee report is—

"To establish and maintain the quality of the Nation's waters at a level that will insure human health and welfare by assisting and encouraging States to enforce their laws and to invoke Federal action when necessary."

The enforcement program under the Federal Water Pollution Control Act aims at rolling back existing pollution and encouraging prevention of pollution in the future, through (1) stimulating voluntary or State initiated action to halt pollution, (2) formal Federal enforcement of pollution abatement, (3) fostering nationwide adoption of uniform principles in State legislation, and (4) encouraging both formally legislated and administrative cooperation among the States for water pollution control.

A budget of $3,620,000 in 1963 would enable this program to implement its responsibilities for pollution abatement in navigable and coastal waters. This would provide for timely and efficient progress in (1) enforcement investigations initiated in 1962 and conducted in conjunction with the States of Michigan and Washington, and (2) enforcement investigations underway in the Colorado River Basin and the Raritan Bay. It would provide also for systematic documentation and maintenance of intelligence on pollution situations potentially subject to enforcement action and on those in which formal action may be requested.

It would allow the conduct of a total enforcement program and the conduct of enforcement investigations in keeping with that outlined in the report and the Federal Water Pollution Control Act as amended in 1961.

A budget of $5,900,000 will be needed in 1970.

Directed research

The objective stated in the report for directed research is—

"To conduct research and to contract for research by others designed to improve processes for purifying water to remove from water or render harmless sewage, industrial waste, and other contaminants, and to extend knowledge of the physical, chemical, and biological characteristics of substances found in water and their effects on human health."

The goals of a direct research program may be summarized as—

(1) To obtain the fundamental scientific knowledge necessary for the protection of our water resources; and

(2) To apply basic scientific knowledge to the development of efficient and practical methods for the repeated reuse of water that is the key to future adequacy of the Nation's water supply.

A 1963 budget for optimum progress toward fulfillment of the needs foreseen by the report would be $8,050,000, to be utilized as follows:

(1) For the investigations authorized by the amended Federal Water Pollution Control Act, of (*a*) maximum removal of contaminants from water; (*b*) identification and evaluation of contaminants in water; and (*c*) methods and procedures for evaluating the effects on water quality and uses of streamflow regulation, $5 million, as authorized in the 1961 amendments to the Federal Water Pollution Control Act;

(2) For toxicological, epidemiological, and related research and research leading to the development of water quality criteria necessary for the protection of wildlife, fish, and other aquatic life, $1.5 million;

(3) For investigation of existing problems of water pollution, including the growing pollution of ground and coastal water, $1.55 million.

Because the problems of water pollution and its protection grow and change with the growth and change of our population and economy, the report saw a 1970 requirement for direct research programs of $11.6 million.

Collection, dissemination, and analysis of basic data

Reliable information concerning trends in water quality, inventory data on water and waste treatment facilities, statistics on financing and construction of facilities, and certain information on pollution related to fish kills is needed to know whether we are meeting needs in research, comprehensive planning, and other elements of water pollution control efforts. The report indicated the following objective:

"To collect, analyze, and disseminate the necessary data to detail the causes and effects of water pollution on water quality and use, and to develop the intelligence upon which successful control and prevention programs can be based."

A 1963 program of $2,260,000 would allow (1) the addition of 80 stations to the national water quality network, bring the total to 205 in operation during 1963, and the placing of automatic instrumentation in 25 stations; and (2) initiation of the first detailed national inventory of industrial waste facilities, in cooperation with a number of State agencies.

The 1970 budget would be $6,400,000.

Technical services

The objective of technical assistance, as indicated by the report, is "to provide technical services to overcome unusual problems that delay implementation of State and interstate water supply and pollution control programs, to render technical assistance in the water supply and pollution control aspects of Federal water resource developments, and to assist municipalities, industries, and individuals on difficult problems when they cannot sustain the necessary staff and facilities."

In 1963, a budget of $2,260,000 would provide:

(1) Short-term expert consultation on specific local problems and encouragement of interagency planning;

(2) Expansion of field studies, such as those on contamination of water supplies by pesticides, recreation, and water quality, and water reuse in shortage areas;

(3) Initiation of a project to develop data storage and retrieval systems for reviewing research and study work which can be utilized in water pollution control programs;

(4) An increase of 40 percent in the short-course training conducted at the Sanitary Engineering Center and an increase of 20 percent in the number of participating laboratories taking part in the analytical reference service for State, community, and other laboratories that perform water quality analysis.

A budget of $5,700,000 will be needed in 1970.

Construction grants services

In 1963, it is estimated that $1.606,000 will be needed to service grants for waste treatment works construction. By 1970, the budget requirements will be $1,900,000.

Field laboratory construction

In 1963, a budget of $8 million would be used to construct four of the seven Federal regional water pollution control field laboratory and research facilities as authorized in Public Law 87–88. The needs for these laboratories are cited in the subcommittee report.

RESEARCH GRANTS

Mr. Fogarty. Your first increase is $823,000 for research grants. I notice that you will only finance 27 new projects in 1963 compared with 45 in 1962, and that the total number of projects financed will also drop. Is that statement correct?

Mr. McCallum. The total number of projects in the current fiscal year is larger in number, but the projects next year are larger. There is an increase in the size of the projects, and there have been recently some fairly large projects presented.

Mr. Fogarty. What about the new grants?

Mr. McCallum. The number of new grants?

Mr. Fogarty. Yes.

Mr. McCallum. Those coming in, and some that have already been approved, are running quite a bit larger.

Mr. Fogarty. But you show a reduction of 18 in 1963. Would the new ones be that large?

Mr. Bersano. Yes, sir. We are anticipating some grants in the neighborhood of $100,000 to $300,000.

Mr. Fogarty. Suppose you get one for $600,000 or $700,000 which the Advisory Committee approves. Does that mean you are going to cut the number of other grants way down instead of asking for more money?

Dr. ANDERSON. Mr. Chairman, we actually are almost in that situation. One very large grant request has come in.

Mr. FOGARTY. For how much?

Dr. ANDERSON. I don't recall the exact figure, but it is in the $500,000 area, for a total program at a university.

Mr. FOGARTY. $500,000?

Mr. MCCALLUM. It is $500,000.

Dr. ANDERSON. These grants, as you know, are all reviewed by the Study Section of the National Advisory Health Council. We depend on them for advice.

Mr. FOGARTY. If you approved that one, that would be more than half of what you have in your budget for all these grants.

Dr. ANDERSON. Yes, sir.

APPROVED APPLICATIONS

Mr. FOGARTY. How many approved applications will you be unable to finance in 1962, this year?

Mr. MCCALLUM. We expect to have about 53 projects left over at the end of the year—approved projects.

Mr. FOGARTY. How much money?

Mr. MCCALLUM. That would require about $1.4 million.

Mr. BERSANO. That is at the end of 1962.

Mr. FOGARTY. So your budget for 1963 will only allow you to catch up on about half of the backlog that exists in 1962. Is that right?

Mr. MCCALLUM. That is right.

Mr. FOGARTY. That is not making much headway. How many additional applications do you expect will be approved next year?

Mr. MCCALLUM. Based on past experience we expect more than 200—perhaps 210 or 215 applications and from these we will have about 115 approved applications in 1963.

Mr. FOGARTY. That means you only will be able to finance about one out of five with this budget in 1963. Is that right?

Mr. BERSANO. Yes, sir.

FELLOWSHIPS AND TRAINING

Mr. FOGARTY. The next increases are $200,000 for fellowships and $400,000 for training grants. How does your budget in this area compare with the Gross report recommendations?

Mr. MCCALLUM. I don't know that these were specific recommendations made by the Gross report.

Dr. ANDERSON. I would like to say, Mr. Chairman——

Mr. FOGARTY. I thought this Gross report was considered to be a pretty good report.

Dr. ANDERSON. It is, sir.

Mr. FOGARTY. I have been told it is an excellent Committee and an excellent report.

Dr. ANDERSON. That is with regard to the need for trained people to work both in control programs and in research programs. The Gross Committee in its entirety came up with the recommendation that, as soon as possible for all of the needs in the fields of environmental health, the training support program by the Public Health Service should amount to about $25 million.

This was not just for water—but water, air, radiation, milk and food, occupational health, and environmental sciences generally.

Mr. FOGARTY. How does this compare with your 1963 request? I am talking about fellowships and training grants.

Dr. ANDERSON. Our 1963 request for fellowships and training grants includes this item in this budget. It also includes the $2 million in the radiological health program.

Mr. FOGARTY. Let's just talk about water pollution now. I asked the same question of the radiation program yesterday, so I am asking the same question now of the water pollution program.

In regard to the fellowships and training grants, how does your budget for 1963 compare with the recommendations of the Gross report if they were put into effect?

Dr. ANDERSON. Right offhand I can't recall it.

Mr. FOGARTY. Put that in the record, then.

Dr. ANDERSON. Yes, sir.

(The requested information follows:)

COMPARISON OF THE BUDGET FOR FELLOWSHIPS AND TRAINING GRANTS WITH THE RECOMMENDATIONS OF THE GROSS COMMITTEE REPORT

About 800 graduate-trained engineers and scientists are reported by the Subcommittee on Water Supply and Pollution Control of the Gross Committee to be the 1963 national need.

The 1963 budget for research fellowships and training grants is $1.4 million. These grants are expected to initiate and expand support for graduate training of 240 engineers and scientists. As an average, only 120 of these individuals can complete their graduate training in 1 year and become available for employment.

The budget for fellowships and training grants would supply an estimated 15 percent of the reported 1963 national need.

GRANTS TO STATES AND INTERSTATE AGENCIES

Mr. FOGARTY. You are asking for an increase of $200,000 for grants to State and interstate agencies. What will this bring the total of these grants to?

Mr. MCCALLUM. $5 million, which is the statutory ceiling.

Mr. FOGARTY. How much of their own funds are these agencies spending for the same purposes?

Mr. MCCALLUM. About $7 or $8 million.

Mr. FOGARTY. So they are spending nearly 50 percent more than the Federal Government.

Mr. MCCALLUM. The figures actually are probably higher than that. That is our latest information, which is not exactly up to date.

Mr. FOGARTY. So this is a popular program in the States, then?

Mr. MCCALLUM. Yes. The States have been increasing their own appropriations substantially and improving their laws, too.

Mr. FOGARTY. Put a table, as to what has happened in the last 2 or 3 years in this regard, in the record.

(The requested information follows:)

State expenditures,[1] exclusive of Federal grant funds for water pollution control program, 1959–61

States	1959	1960	[2] 1961
Total	$6.514,980	$6,755,822	$7,606,088
Alabama	30,671	29,234	36,369
Alaska	33,118	19,811	17,621
Arizona	36,888	38,020	30,322
Arkansas	91,299	75,640	68,187
California	663,163	699,773	881,797
Colorado	205,480	250.494	268,204
Connecticut	151.091	87,727	85,116
Delaware	61,782	62,471	61,367
District of Columbia	49,638	58,847	66,284
Florida	440,964	425,009	442,952
Georgia	136,251	116,100	221,646
Hawaii	52,375	67,336	56,546
Idaho	24,870	32,239	53,045
Illinois	168,865	119.941	312,106
Indiana	105,895	107,769	121,585
Iowa	56,279	67,560	81,398
Kansas	93,844	102,672	112,458
Kentucky	30,300	34,681	87,816
Louisiana	85,005	71,834	87,985
Maine	115,663	127,708	116,114
Maryland	116,031	167,029	122,636
Massachusetts	98,028	105,940	99,868
Michigan	130,912	131,996	161,795
Minnesota	120,238	88,895	110,442
Mississippi	29,593	68,173	72,317
Missouri	113,440	67,858	80,965
Montana	20,615	33,031	30,468
Nebraska	14,951	17,763	17,107
Nevada	18,976	26,013	28,115
New Hampshire	63,295	66,362	61,751
New Jersey	177,339	185.652	146,520
New Mexico	58,248	57,008	62,229
New York	854,608	883,268	976,207
North Carolina	145,525	183,342	183,457
North Dakota	12,075	15,100	15,559
Ohio	290,612	214,079	261.673
Oklahoma	24,214	25,638	27,428
Oregon	58,106	63,442	93,894
Pennsylvania	601,383	809,795	893,351
Rhode Island	36,760	40,767	51.543
South Carolina	80,076	69,958	86,845
South Dakota	18,704	16,868	21,996
Tennessee	78,044	77,782	79,646
Texas	88,092	120,883	107,608
Utah	30,601	21,358	47.134
Vermont	109,840	93,341	69.420
Virginia	114,662	125,979	128,050
Washington	152,278	175,938	184.783
West Virginia	45,884	44,120	60.317
Wisconsin	133,954	117,298	57,217
Wyoming	17,021	27,213	38,477
Puerto Rico	21,031	14,395	10,588
Virgin Islands	6,403	4,672	7,764

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[1] Does not include State grants to municipalities for waste treatment works nor State contribution to interstate agencies.

[2] Provisional figures.

DEMONSTRATION GRANTS

Mr. FOGARTY. You are also asking an increase of $200,000 for demonstration grants, which would bring the total to $500,000. Give us a couple of specific examples that will illustrate the value of this program.

Mr. MCCALLUM. One project we are supporting is work by the Hancock Foundation at the University of Southern California. The California Water Pollution Control Board, the Hancock Foundation, and the Public Health Service are collaborating in this project.

The purpose of the project is to determine methods of evaluating the effects of manmade pollutants, sewage effluents, on water on the Continental Shelf. Our primary interest is in how this kind of a project should be conducted; for example, what are the biological indices that should be looked at? This is a problem involving many coastal areas of the United States.

By supporting part of this project, we are getting the work done in a much more economical way than we could if we tried to do it all ourselves.

We have another project in southeast Michigan. This is an organizational one to handle major drainage, waste disposal in a congested area—300 communities, 7 counties—all of these jurisdictions. The project is being carried on by the National Sanitation Foundation, the University of Michigan, the county boards of supervisors, industry, and the communities of the area.

We are helping to support it and are trying to find means of organizing groups in such a way as to find a more effective means of organizing to handle such problems.

We have had inquiries about this project from other parts of the country, so we are convinced that it will be of value to the people in many other States.

COMPREHENSIVE PROGRAM OF WATER POLLUTION CONTROL

Mr. Fogarty. Your largest increase is $1,622,000 for the so-called comprehensive program of water pollution control. We will put the table on pages 114, 115, ad 116, giving the cost of each project, in the record at this point.

(The pages referred to follow:)

Project	Total cost	Years for completion
Arkansas-Red River Basin:[1]		
Upper river area	$1,612,000	5
Lower river area	315,000	3
Chesapeake Bay-Susquehanna River Basin[1]	4,000,000	6
Great Lakes-Illinois River Basin[1]	12,850,000	7
Columbia River[1]	1,400,000	5
Florida	1,400,000	5
Great Basin	1,600,000	5
Hudson-Connecticut	7,100,000	7
Mississippi River:		
Upper river area	2,100,000	6
Lower river area	1,900,000	6
Delaware[1]	800,000	5
Missouri River:		
Upper river area	2,100,000	7
Lower river area	1,000,000	5
Ohio River:		
Upper river area	2,600,000	6
Lower river area	2,100,000	5
Middle Atlantic	2,000,000	7
Northeastern	1,700,000	5
North Pacific	500,000	5
Pacific coast	1,900,000	6
Rio Grande	1,200,000	5
Sabine	800,000	4
Southeastern	2,200,000	6
Souris	900,000	4
Tennessee River Basin	1,400,000	5
Texas Basin	1,500,000	6
White River Basin	700,000	4
Total	57,677,000	

[1] Projects underway or proposed through 1963.

Funds budgeted for 1962 and 1963

	1962 estimate		1963 estimate		Increase (+) or decrease (−)	
	Positions	Amount	Positions	Amount	Positions	Amount
(a) Arkansas-Red River Basin	32	$343,000	22	$296,000	−10	−$47,000
Lower Arkansas-Red River Basin	15	110,000	7	65,000	−8	−45,000
(b) Chesapeake Bay-Susquehanna River Basin	6	50,000	12	153,000	+6	+103,000
(c) Great Lakes-Illinois River Basin	134	1,520,000	198	3,180,000	+64	+1,660,000
(d) Columbia River Basin	22	193,000	22	193,000		
(e) Delaware River Basin	5	55,000	9	90,000	+4	+35,000
(f) Basic program and flow augmentation	27	214,000	39	314,000	+12	+100,000
Total	241	2,485,000	309	4,291,000	+68	+1,806,000

SCHEDULE FOR COMPLETION

Mr. Fogarty. At the rate of your current plan, when will this comprehensive program be completed?

Mr. McCallum. At the present time we have four underway. The Arkansas-Red River project, which we will have completed in 1963; the Great Lakes-Illinois Waterway project, which we started last year which is a 7-year program and has 6 year yet to finish ; the Columbia River project, which is a 5-year program, now in the second year; and we are beginning the Chesapeake Basin and Susquehanna River program, and have just started on a very small scale the Delaware River program.

Our plan of operation would call for a 5-year program on the Delaware, and a 5-year program on the Columbia. We don't thing they should be carried on at any slower rate because the States, industries, communities, universities, collaborate in this; and we would like to move it along as fast as we can and begin to implement the corrective measures.

Mr. Fogarty. The question I asked was, When will this comprehensive program be completed?

Dr. Anderson. 1975.

Mr. McCallum. That is for the whole country, yes.

Mr. Fogarty. Did the Gross report make any recommendations on a completion date?

Dr. Anderson. I don't recall that it did.

Mr. McCallum. The Senate select committee said that these programs should be completed by 1970. We are discussing this matter with the States and interstate agencies and have agreed we could mobilize the resources to do it by 1975.

Mr. Fogarty. I think the President has spoken about this also, hasn't he?

Mr. McCallum. Yes. He has accepted the Senate committee report and also referred to 1970.

Mr. Fogarty. Do you have sufficient funds in this 1963 budget to get on a schedule to complete this program by 1970?

Mr. McCallum. By 1970?

Mr. Fogarty. Yes.

Mr. McCallum. No, sir.

Mr. Fogarty. The President says it should be, but, under the budget, it is not going to be.

Mr. McCallum. No, sir.

REQUEST TO BUREAU OF THE BUDGET

Mr. Fogarty. What did you ask the Bureau of the Budget for on this item?

Mr. Kelly. $1,063,000 more than the amount included in this budget, Mr. Chairman.

Mr. Fogarty. If that $1,063,000 were added to this, would that get you on a schedule to comply with the President's and the Senate Select Committee's opinion that this program be completed by 1970?

Mr. McCallum. Not on a 1970 schedule, but it would assure that we would be on the 1975 schedule.

FUNDS NECESSARY TO COMPLETE THE PROGRAM BY 1970

Mr. FOGARTY. How much would it take to comply with the President's wishes and complete this program by 1970? The President did say it should be completed by 1970, didn't he?

Mr. McCALLUM. Yes, all of them, for all of the Federal agencies. You mean how much money we would need now in this request to get on that schedule?

Mr. FOGARTY. Yes.

Mr. McCALLUM. $7.5 million.

Mr. FOGARTY. How many new starts would be undertaken in 1963 to get on that schedule?

Mr. McCALLUM. Three new starts.

Mr. FOGARTY. Which ones would they be?

Mr. McCALLUM. The Ohio River, the State of Alaska, and the Rio Grande.

Mr. FOGARTY. Are they more important than the Hudson-Connecticut project and the northeastern project?

Mr. McCALLUM. We have been asked by the other Federal agencies to furnish the kind of information that the comprehensive program has developed specifically in these areas because of other Federal works developments. I think that right now the needs of the other Federal agencies would place these three in a high priority, but there would also be others with almost equal priority.

Mr. FOGARTY. It would take $7.5 million more than we have in the budget to get started on this schedule?

Mr. KELLY. That is $7.5 million as compared with the $4,291,000 in the budget now.

Mr. FOGARTY. I see.

Mr. KELLY. It is about $3.25 million shy of that.

Mr. McCALLUM. That is based on the cooperation that we think we could get from the States and others and the success we would have in mobilizing the resources to do the job.

Mr. FOGARTY. There aren't going to be any new projects started under this budget, are there?

Mr. McCALLUM. No, sir.

1962 RESERVES EFFECT COMPREHENSIVE PROGRAM

Mr. FOGARTY. Are any of the 1962 funds for this activity in reserve for savings?

Mr. McCALLUM. Yes, sir; $200,000.

Mr. FOGARTY. Here we have the President and the U.S. Senate saying we ought to complete this program by 1970, and I agree with them, but your budget is $3.25 million short of providing for that plan. We find out now that you are even cutting back the already inadequate funds appropriated for 1962. Isn't that right?

Mr. McCALLUM. We weren't really on that schedule before.

Mr. FOGARTY. Don't you pay attention to the select committee in the Senate and the President when they speak?

Mr. McCALLUM. Yes, sir. We have done the best we could to devise a well-balanced program and carry out the responsibilities that Congress has specified in the act with all of the different authorizations, some 15 different authorizations, trying to keep them all balanced.

COOPERATION WITH THE STATES

Mr. FOGARTY. Are you having any trouble getting cooperation from the States?

Mr. McCALLUM. No. It has been very good. As a matter of fact, we have more requests and more readiness to collaborate than we are ready to take care of.

Mr. FOGARTY. You are having more trouble with the Secretary and the Bureau of the Budget than you are with the States according to this budget. I won't ask you to comment on that.

JUSTICE DEPARTMENT INTEREST IN GREAT LAKES STUDY

You mentioned that the Justice Department and the Supreme Court are interested in the Great Lakes study. Why?

Mr. McCALLUM. That is the *Chicago Diversion* case. There is a suit in the Supreme Court by the Lake States asking that the diversion of 1,500 second-feet be reduced. As a matter of fact, it has been proposed by the Lake States that the effluent of a billion gallons a day of Chicago sewage be returned to Lake Michigan.

When the special master, Judge Maris, started holding hearings, his observation was that the suit brought forth a dearth of information on this whole matter.

We had indicated as much to the House and Senate Public Works Committees when we were asked to appear as experts at hearings. As a result we were asked to try to obtain the facts on this situation.

We have made, I think, good progress. As we told the Senate Public Works Committee 2 years ago, there were three things that needed to be done. First was a hard look at what was being done in the area served by the Metropolitan Sanitary District of Chicago, because there were allegations that better practices could be followed, that all of the wastes did not go through the treatment works, and that before the courts would look with sympathy on more diversion from the lake they would like to be sure that everything was being done that could be done technically to handle this problem. That part of the study we have nearly completed.

Second, a study of the Illinois River and the ship canal which is nearly completed. Third, and beginning next year, will be a survey of the situation in the south end of Lake Michigan.

We have made six progress reports to the Justice Department. We made this report to the Justice Department in August of 1961, so they are kept informed of our findings.

Mr. FOGARTY. Are you satisfied with the progress you are making on this?

Mr. McCALLUM. Yes. As a matter of fact, speaking of cooperation, we have had the best cooperation from all of the people concerned and the industry. We have had no difficulty whatever in getting the facts.

ENFORCEMENT ACTIVITIES

Mr. FOGARTY. Your next increase is $153,000 and 29 positions for enforcement activities. Are you having any trouble in this area?

Mr. McCALLUM. No, I don't think we are having any trouble.

Mr. FOGARTY. Do you think this is enough that you are asking for? What did you ask the Department for?

Mr. BERSANO. We asked the Department for $3,620,000.

Mr. FOGARTY. Compared to what in the budget?

Mr. BERSANO. $2,626,000.

Mr. FOGARTY. So you were cut how much?

Mr. BERSANO. We were cut $383,000 by the Department, and we were cut $611,000 by the Bureau of the Budget.

RESEARCH ACTIVITIES

Mr. FOGARTY. You are asking for an increase of $203,000 for direct research. You say on page 126 that the plan for 1963 reflects a substantial redirection of this program.

What do you mean by that? Are you going in the wrong direction?

Mr. MCCALLUM. No, sir. What we are going to try to do is concentrate more on our intramural research in certain areas, and particularly those areas——

Mr. FOGARTY. Give me a couple of examples.

Mr. MCCALLUM. One is better methods of waste treatment, municipal waste treatment. Of course this is the crux of the problem in Chicago. Even after the best treatment that we know in the world, we still have a population equivalent, as we call it, of the effects of pollutants after treatment of a million persons.

What we are trying to do is concentrate our research efforts, both new personnel and people we already have with special skills and our financial resources, on this type of problem.

Mr. FOGARTY. This is one of the more important problems in the whole program, isn't it?

Mr. MCCALLUM. Yes, sir.

Mr. FOGARTY. And it is going to get worse unless you do something about it.

Mr. MCCALLUM. We know that in 1980 we will have developed all the water resources we have in the country. From then on, whoever gets more water will have to have water that has been used by somebody else. Much of it will have been used by municipalities at least once.

Mr. FOGARTY. I think I read the figures recently. What was it——

Mr. MCCALLUM. 600 billion gallons a day; that is all we can develop.

Mr. FOGARTY. So we will have to find ways of reusing this water.

Mr. MCCALLUM. That's correct. We are already at that point in the Southwest and a good many parts of the country.

OTHER INCREASES

Mr. FOGARTY. Would you like to comment on the other three items of increase set forth on page 100?

Mr. MCCALLUM. This increase of $121,000 in the basic data item is to carry for a full year a number of sampling stations in the national water quality network that were started last year. We will have 125 at the end of the year. Our goal, which has been recommended by consultants and the Water Pollution Control Advisory Board is 300. We are moving toward that objective as fast as we can.

In the technical services, that increase is primarily for services in connection with the new grant authorizations—training grants, research fellowships, and demonstration grants—this being the first time they have been implemented.

Mr. FOGARTY. You can put the rest of that in the record.

(The information is as follows:)

INCREASE REQUESTED FOR CONSTRUCTION GRANTS SERVICES

An increase of 16 positions and $171,000 is requested for services required by the new services and expanded construction grant program arising from Public Law 87–88.

In 1963 the increased grant activity will be in its second year. It is expected that 900 grant offers will be made and 2,000 payment inspections will be performed during the year. In addition to this heavy workload, new services are required by the 1961 amendment.

The new services include (1) substantiation of multiple-sponsor arrangements among communities; (2) determination of funds available for reallotment and establishment of State's eligibility for reallotted funds; (3) development of eligibility for additional Federal impact grants; and (4) application of wage rate provisions of Davis-Bacon Act.

LEGISLATIVE AUTHORIZATION OF RESEARCH

Mr. FOGARTY. What did the legislation last year authorize for research per year and in what areas?

Mr. McCALLUM. It specified three types of research.

Mr. FOGARTY. What are they?

Mr. McCALLUM. The first one we call advanced waste treatment, better methods of treating municipal wastes. The second was the detection and means of treating and handling exotic substances, some of the new types of pollutants such as detergents.

Mr. FOGARTY. That problem is getting worse every year, isn't it?

Mr. McCALLUM. That is getting worse.

Mr. FOGARTY. With the new detergents that are coming out.

Mr. McCALLUM. It is one which the States don't feel they are equipped to deal with. They look pretty much to us for leadership in handling such special problems on a voluntary basis.

The third one was the value of dilution water, providing storage in Federal reservoirs for water that is used to provide more dilution for wastes.

Mr. FOGARTY. What do you mean by dilution?

Mr. McCALLUM. More streamflow, particularly in times of low flow. That is when the concentration of salts and solids and all of those things is at their peak. A means of finding out the real value of dilution water, that is, to be able to predict what the needs are with accuracy. We certainly don't know too much about it, but it is very important, that when an impoundment worth several hundred millions of dollars is built, we are right in predicting how much storage should be provided for this purpose.

BUDGET PROVISIONS FOR RESEARCH

Mr. FOGARTY. How much do you have in the budget for this program?

Mr. McCALLUM. For this particular type of research?

Mr. FOGARTY. That was authorized by Congress last year, yes.

Mr. McCallum. Our increase for research is $279,000.

Mr. Fogarty. What is the total?

Mr. Doran. $2,376,000.

Mr. Kelly. That is the direct, isn't it?

Mr. Bersano. Total direct.

Mr. Kelly. In addition, there is grant research.

Mr. Doran. Grants, $3,285,000.

Mr. Fogarty. So you are over $2.5 million short of what Congress authorized you to spend in these three areas. Is that right?

Mr. McCallum. That is right.

REQUEST TO THE DEPARTMENT

Mr. Fogarty. What did you ask the Department for in this area?

Mr. Bersano. We asked for $8,050,000 for research.

Mr. McCallum. In the $8 million, we proposed to implement these three specific areas at $1,500,000 rate the first year. That was what our research people thought we could do. Then it would go along faster subsequently.

Mr. Fogarty. But in this area you are over $2.5 million short of what Congress authorized last year. If you were given this additional $2,600,000, could you use it to get the personnel for 1963 to do this job and do it right, do you think?

Mr. McCallum. Yes, sir; we can get the personnel. We have been quite encouraged by the challenge that these areas have provided. I was on the program at the meeting of the American Association for the Advancement of Science recently in Denver and talked with a good many specialists—not in our field and not engineers, but others.

They are very much interested in these problems. The university people have indicated deep concern and readiness to help.

Mr. Fogarty. Are you getting pretty good cooperation from the universities?

Mr. McCallum. Yes, very good.

WATER QUALITY CONTROL RESEARCH

Mr. Fogarty. On page 129 of the justifications you are asking for $50,000 for research on water quality control to protect aquatic life. How is this research important?

Mr. McCallum. It is very important, I think. If we don't protect the aquatic life in the control of water pollution, there is something wrong. The act specifically specifies that aquatic life is one of the water uses for which the water is to be protected.

One of the problems is that we don't really know the effects of many of the pollutants, singly or in combination, on aquatic life.

Things happen. We have a large number of fish killed and other damages to other types of aquatic life each year, and we frequently don't know why.

Mr. Fogarty. Is that because no standards have been developed?

Mr. McCallum. That is right. We need information of that type, and we have it for some water uses. For example, we have the Public Health Service drinking water standards and have had them for some 40 years.

Mr. FOGARTY. But we don't in this area?

Mr. MCCALLUM. We don't have standards for most of the other water uses.

Mr. FOGARTY. The Fish and Wildlife people and the Izaak Walton League and all these groups are very much interested in this program. They would like to see this program get off to a good start; $50,000 isn't much money, though, is it, for such a difficult problem?

Mr. MCCALLUM. It is very difficult. It is one that has not had much attention.

Mr. FOGARTY. They will be coming in to testify. What do you think we ought to be spending in 1963 to get this program started right?

Mr. MCCALLUM. We thought with this amount we could get a start and establish a baseline, agree on what it is that needs to be done and the resources and the kind of people we will need. We will divert a few of our experienced people and assemble some new ones to get started. It would be hard for me to say right now how much it will take.

Mr. FOGARTY. We will give you a chance to think it over. Put a statement in the record. I think this is an important problem. It is a difficult one. There is a great deal of interest in all these groups in developing these standards.

I think you ought to really go to work on it and develop it as fast as possible—within reason, of course. So you can provide that statement and put it in the record.

(The statement follows:)

WATER QUALITY REQUIREMENTS OF FISH AND OTHER AQUATIC LIFE

The Federal Water Pollution Control Act recognizes the need for protecting wildlife and fish and aquatic life against water pollution. Commercial fisheries and sport fisheries valued in billions of dollars depend upon protection of aquatic life. We know from difficulties encountered by the Public Health Service in protecting the shellfish markets and consumers, from our collection of data on pollution-caused fish kills, and from numbers of small independent studies, that very costly damage already has been inflicted upon our aquatic resources.

Valuable fish are killed by the direct challenges of highly toxic contaminants in water and by oxygen depletion. Sometimes they are stunted or their reproduction is reduced by long-term exposure to sublethal concentrations of pollutants. They are starved out, in some instances, by pollution damage to or extermination of their food organisms, and they suffer other kinds of damage as a result of pollution.

These phenomena are well known and appear to be occurring more frequently as time passes. Unfortunately, the specific contaminants that cause these damages to a great natural resource often are not known. The particular mechanisms through which contaminants attack living organisms in various parts of their life cycles also are unexplored.

A massive, well-coordinated research effort is required, to (1) obtain understanding of these damaging effects of pollution, and the ways in which they develop; (2) find means to reduce the occurrence of such pollution: (3) seek methods of controlling contaminants that get into water through runoff; (4) halt some of these effects of pollution; and (5) develop a system of biological indicators of water quality to provide a dependable history of the quality of the waters that will assist in enforcement cases, and improve our measures for protecting human health.

The Fish and Wildlife Service of the Department of the Interior, the State fish and game agencies, many research and teaching institutions and many organizations dedicated to conservation and civic courses are eager to see the Public Health Service launch a significant program of research in these areas. Most of these organizations are able and willing to cooperate in or support such an effort.

To begin this activity in 1963 on a scale consistent with satisfactory progress would require a budget of $1 million. This would strengthen the Public Health Service staff of research biologists, establish a number of directly operated projects in locations suitable for the study of important classes of problems, collect and collate the findings of the small independent studies that have been made to date, and permit the Public Health Service to contract with State agencies for studies of problems that can be defined for the investigators.

Mr. FOGARTY. Mr. Marshall?

INCREASE FOR SERVICES OF OTHER AGENCIES

Mr. MARSHALL. On page 98 of the justifications, Mr. McCallum, you show that you will have an increase of well over 100 percent in the funds that you are requesting for services performed by other agencies.

What brings about that terrific increase in 1 year's time?

Mr. BERSANO. The largest part of this amount is going to the Corps of Engineers. It is in connection with the Great Lakes study.

Mr. MCCALLUM. What it is, Mr. Marshall, is to determine what is going to happen to pollutants; where they go; how they may affect Chicago's water supply and Lake Michigan. We have to know something about the lake currents to do this.

Some of the lake current data is very old, and all of it is very meager. In a stream we know precisely what the velocity is and where a particle goes and what happens when something is discharged to it. We do not have such information on the lake. So we are going to have to construct what we call observation stations that will be set in the lake and will take readings on temperature, velocity, and direction of horizontal and vertical currents in connection with our water pollution study on the south end of the lake.

The Corps of Engineers have developed a model for us, and they will construct and help us install and operate these stations.

Mr. MARSHALL. Why did not the Corps of Engineers request this within their own budget?

Mr. MCCALLUM. It is our job. We are conducting the pollution survey. We could have gotten a private contractor or someone to do it, but we do know that the Corps of Engineers have competence in these lines and they have been kind enough to help us do this.

Mr. MARSHALL. How much of that increase of the $710,400 goes to the Great Lakes area? Do you have the figure on that?

Mr. BERSANO. I don't have the figure here now. I can supply that.

Mr. MARSHALL. I wonder if you might supply for the record a breakdown of the increases for that particular item of $710,400 to show how you arrived at that figure, show where it goes, and to what agencies?

Mr. BERSANO. Yes, sir.

(The information is as follows:)

BREAKDOWN OF "SERVICES PERFORMED BY OTHER AGENCIES"

Certain technical competencies maintained by other Federal agencies in their regular work are needed occasionally in water pollution control activities. The Public Health Service utilizes and reimburses the supplying agencies for such services under section 601 of the Economy Act (title 31, U.S.C. 686). Payments to other agencies reflected in the justification for the water supply and water pollution control appropriation consist of such transactions and of payments to the General Services Administration for activities such as real estate services provided by that agency under its general authorizations. Payments to the General Services Administration will be larger in 1962 than in 1963 because certain expansions of leased office and laboratory space, now in progress, will be completed in 1962.

The largest technical project represented in the 1963 budget amount is the development and assembly by the Corps of Engineers, Department of the Army, of instrumented stations for collecting data on the dispersal of pollutants in Great Lakes waters by currents and the flow and exchange of waters in the lake system. Most of the developmental work is being performed in 1962, and the assembly, placement, and servicing of the devices in Lake Michigan will take place in 1963.

Technical services costing smaller sums are provided by the Geological Survey, Department of the Interior, Department of Agriculture, and other agencies. There will be a decline in the sum of such services in 1963.

Summary explanation of the budgeted increase in 1963 for services performed by other agencies

	Estimate, 1962	Estimate, 1963	Change
Corps of Engineers	$150,000	$1,100,000	+$950,000
Geological Survey, Department of Agriculture, and other Federal agencies	149,600	120,000	−29,600
General Services Administration	250,000	40,000	−210,000
Total	549,600	1,260,000	+710,400

POLLUTION OF GROUND WATER

Mr. Marshall. What have you done about the pollution of the underground water supply? Is there anything in this budget on that problem?

Mr. McCallum. We have responded to quite a number of requests by the States to help on problems of ground water pollution as a part of our technical services from Cincinnati.

Mr. Marshall. These detergents seem to be creating in some areas of the country a problem in connection with underground water pollution.

Mr. McCallum. Yes. The detergents themselves are pollutants, and then they travel more repidly by reducing friction through the soil.

Mr. Marshall. Has there been any thought given by the Department to the possibility of licensing some of these detergents?

Mr. McCallum. No. I don't know of any such approach as that; but our people at Cincinnati and we here have been working with committees and people in the industry and universities toward the possibility of developing a type of detergent that would break down in water and wouldn't have these undesirable characteristics.

Quite a bit of research has been directed along that line. We are also ourselves working on methods of trying to remove them from water, which we have so far been unable to do.

Mr. Marshall. That is a point that bothers me a bit, because I am wondering why taxpayers should be put in the position of supplying funds to remove some of this pollution such as detergents when basically they are commercially placed in the water by us in the first place.

Why not stop it right at the source and prevent it from going into the water?

Mr. McCallum. That has always been our philosophy as a way to prevent pollution. Keep it out. Of course there are some things that we can't keep out—land runoff and some of those things. And there are other organic substances that have some of the same characteristics as detergents as far as waste treatment and water treatment are concerned.

We need effective methods of treating municipal wastes approaching 100 percent purity. If we had such a method it would automatically take care of a good many of these substances, instead of having to consider them on a piecemeal individual basis. That is what we hope to do in our direct research program.

Mr. Marshall. Have any of these companies manufacturing detergents made any contributions in funds to your work in underground water pollution?

Mr. McCallum. Not directly. Some of their technical people have served as consultants and are on committees in professional organizations with our people. We have benefited in that way.

Dr. Anderson. I think it is correct, Mr. Marshall, to say they are devoting some of their own research talents to this problem. This isn't directly a contribution to our funds, but it is to the total effort.

Mr. McCallum. That's right. They are anxious to develop products that won't have these pollutional characteristics.

Mr. Marshall. Thank you.

STATUS OF WORK ON THE ILLINOIS WATERWAY

Mr. Michel. Following through your statement, continual reference is made to this comprehensive program for water pollution control in the Great Lakes, and particularly the Illinois Waterway. To date, how much money has been spent on that particular project?

Mr. McCallum. We had $500,000 last year. The appropriation this year was $1.5 million. So there has been appropriated $2 million for this fiscal year and the succeeding fiscal year.

Mr. Michel. Am I to understand that a copy of this interim report—which I see here for the first time—is what we have realized from that original expenditure thus far? Or has any of the information been imparted to industry, for example, in that particular area? And have we realized any results from this survey?

Mr. McCallum. Yes, sir. This might be of interest. When we started this survey, the Surgeon General asked representatives of industry, the States, the Chicago Sanitary District, and some of the other municipalities to participate on a committee.

That committee meets quite often on the survey, and reviews the information. So, as we proceed the data are not only made available to the Justice Department, but to all of the interested people. Some corrective measures have already been instituted.

For example, we have examined more than 1,300 outlets on the Illinois Waterway in the Chicago metropolitan area. We have found that some 100 of them will have to be observed more closely for the possibility of waste discharges.

This is precisely the type of information the Justice Department wants in connection with the study.

Mr. MICHEL. Aside from that particular aspect, has the Chicago Sanitary District itself done anything about correcting this deficiency which apparently exists up in that area?

Mr. McCALLUM. Yes, they have. There have been some corrective measures instituted. I think, certainly since we have been working in the survey, the operation of the treatment works has been efficient. There have been charges that it has not been, but our observations have not so indicated. It is efficiently operated.

EFFECTIVENESS OF POLLUTANT REMOVAL IN THE CHICAGO SANITARY DISTRICT

Mr. MICHEL. Somewhere later on in your testimony I think there is a reference made to present waste treatment methods removing only 40 to 60 percent of the pollutants, and so forth and so on. How effective is that treatment up there in the Chicago Sanitary District?

Mr. McCALLUM. It is the best treatment we know how to provide today. But on the basis of the total solids added to the municipal use of water, that is about all we can do.

Mr. MICHEL. Even under our most modern——

Mr. McCALLUM. That's right. For instance there is a million pounds of salt—sodium chloride—added to used water in Chicago each day, but none is removed by treatment. That is true of some of the organic substances, nitrates and phosphates and others.

We refer to treatment of the type employed in Chicago as 90 percent treatment. But what we really mean is that it is 90 percent efficient in removing oxygen consuming pollution rather than the total amount of foreign matter added.

As we approach the need for water reuse, such as water for use in Peoria, we do need to remove these other materials.

Mr. MICHEL. I sponsored legislation to increase that flow of Lake Michigan water, the diverting of Lake Michigan water through the Illinois. At the time we were given some pretty good assurances from the people upstream that they were doing the best job that could possibly be done, and they were giving us percentages of 90 percent plus on purification.

Of course those of us who are downstream have a direct interest because we want to keep the Illinois River and its streams as clean as we possibly can. There has been this concern expressed that these solids would tend to sludge up the river, and we are dependent in good measure for the distilling industry down our way to draw upon a good underground water supply.

Mr. FOGARTY. Hiram Walker?

Mr. MICHEL. Yes, and others, too.

Mr. McCALLUM. A member of that corporation is on our water pollution board.

EFFECT OF FEDERAL EXPENDITURES IN WATER POLLUTION CONTROL

Mr. MICHEL. Dr. Boruff; that is right. He is a very eminent scientist in his own right. You state here that 250 cities and industrial plants have participated in some of these actions and agreements have been reached on time schedules for abatement actions involving expenditures of more than $500 million for waste treatment facilities to clean up more than 4,000 miles of stream.

Would you say that the Federal expenditure in this area has stimulated private industry and States and local communities to participate to this extent?

Mr. McCallum. Oh, yes; I think so. I am sure if they appear before your committee, they will substantiate that.

Mr. Michel. Several new plants have established themselves along the Illinois Waterway. One new chemical plant in particular I recall, has its own purification facility which I have seen in operation.

I was given to understand it was the most modern that we have in effect today. As a matter of fact, I have drunk the water that has come out after going through all the rigamarole just before it is returned to the river. This is private industry doing what I think it ought to do.

Is there any method we have for enforcement of this kind of thing on the part of new industry being established, wherever it may be in any section of the country?

Mr. McCallum. Yes. The States are paying considerable attention to the location of new industry. They call on our experts in Cincinnati almost every week in connection with these types of problems. I have a letter on my desk right now from the State of Missouri about the location of an industry on a small stream there.

INCREASE FOR NEW PERSONNEL

Mr. Michel. In your justifications here on this item calling for 68 new positions in the comprehensive program for water pollution control, and an increase of $1,806,000 what would those new positions actually be for?

Mr. McCallum. They will be on our Great Lakes project.

Mr. Michel. Principally what category? Are these just sample gatherers, or are these professional people?

Mr. McCallum. I would think about a third of them would be professional.

Mr. Michel. A third professional, and two-thirds——

Mr. McCallum. What we will be doing next year is extend our factual data collection from the Chicago area to Milwaukee and start the third part of the project, that is the work on the south end of Lake Michigan.

Mr. Michel. What is the target date for completion of this overall study?

Mr. McCallum. We estimate it will take 7 years to complete the Great Lakes project.

Mr. Michel. Seven?

Mr. McCallum. Yes; 1963 will be the most intensive year during which we will initiate work on the most complex part of the problem.

Mr. MICHEL. That would involve a total expenditure of what over the 7 years?

Mr. McCALLUM. We estimate about $12 million.

GRANTS TO STATES

Mr. MICHEL. I notice in the breakdown of allocations of grants and aid funds for water pollution control on page 109, $190,500 for Illinois, and an estimated 1963 figure of $205,900. How many projects would this involve in fiscal year 1962?

Mr. McCALLUM. Those funds go to the sanitary water board. They submit a plan to the Public Health Service on how they will use this money to augment their pollution control program. Some of the funds will provide technical backup possibly in an enforcement case, or a special study of a particular problem.

Mr. MICHEL. What kind of guidelines do you set out here in the granting of that allocation to Illinois, for example?

Mr. McCALLUM. They submit a plan of what they propose to do, an overall plan of their program for the next year, including what this would help support.

Mr. MICHEL. Is there any specified formula by which the States share in this grant?

Mr. McCALLUM. Oh, yes. That is provided in the act. I think Illinois puts up about $2 for every $1 of Federal money.

Mr. MICHEL. What are the extremes again of that minimum matching on the part of the State as against the maximum?

Mr. McCALLUM. One-third and two-thirds.

Mr. MICHEL. Illinois pays $2 for every $1 we get. Right?

Mr. McCALLUM. It is toward that end. It is above the medium.

Mr. MICHEL. Would you supply for the record precisely a breakdown by States of what that provision is.

(The requested information follows:)

BREAKDOWN BY STATES OF THE MATCHING REQUIREMENTS FOR CONTROL GRANTS IN 1963

Matching provisions under this program are variable, based on per capita income. The method of computing the "Federal share" are set forth in section 5(h)(1) of the act, as follows: The "Federal share" for any State shall be 100 percent less that percentage which bears the same ratio to 50 percent as the per capita income of each State bears to the per capita income of the United States, except that (*a*) the Federal share shall in no case be more than 66⅔ percent or less than 33⅓ percent, and (*b*) the Federal share for Puerto Rico and the Virgin Islands shall be 66⅔ percent. The provisions by States are as follows:

State and territories	Tentative Federal allotment	Federal share (percent) of program costs	State and local funds required for grant of full Federal allotment
Total	$4, 700, 000		$4, 816, 600
Alabama	97, 300	66⅔	48, 600
Alaska	15, 300	40. 82	22, 200
Arizona	37, 600	54. 39	31, 500
Arkansas	62, 300	66⅔	31, 100
California	276, 500	39. 38	425, 600
Colorado	43, 700	51. 41	41, 300
Connecticut	82, 100	33. 64	162, 000
Delaware	45, 300	33⅓	90, 600
District of Columbia	47, 500	33⅓	95, 000
Florida	118, 000	54. 41	98, 900
Georgia	109, 200	64. 67	59. 700
Hawaii	37, 700	51. 72	35, 200
Idaho	26, 300	58. 95	18, 300
Illinois	205, 900	39. 17	319, 800
Indiana	115, 100	51. 03	110, 500
Iowa	70, 800	54. 44	59, 200
Kansas	54, 400	53. 91	46, 500
Kentucky	89, 600	65. 05	48, 100
Louisiana	91, 700	62. 95	54, 000
Maine	36, 800	59. 14	25, 400
Maryland	87, 600	45. 97	103, 000
Massachusetts	134, 000	43. 65	173, 000
Michigan	177, 000	47. 04	199, 300
Minnesota	83, 000	54. 15	70, 300
Mississippi	80, 700	66⅔	40, 300
Missouri	97, 200	51. 48	91, 600
Montana	24, 400	52. 96	21, 700
Nebraska	39, 900	53. 55	34, 600
Nevada	16, 100	37. 71	26, 600
New Hampshire	34, 600	54. 27	29, 200
New Jersey	145, 900	39. 27	225, 600
New Mexico	30, 900	58. 30	22, 100
New York	307, 900	37. 38	515, 800
North Carolina	131, 600	66. 44	66, 500
North Dakota	25, 800	62. 88	15, 200
Ohio	212, 300	45. 49	254, 400
Oklahoma	62, 400	59 09	43, 200
Oregon	45, 800	51. 22	43, 600
Pennsylvania	241, 300	48. 07	260, 700
Rhode Island	58, 500	50. 55	57, 200
South Carolina	82, 600	66⅔	41, 300
South Dakota	26, 900	62. 69	16, 000
Tennessee	105, 300	65. 27	56, 000
Texas	196. 500	55. 73	156, 100
Utah	31, 000	57. 42	23, 000
Vermont	26, 300	59. 42	18, 000
Virginia	101, 800	58. 11	73, 400
Washington	65, 300	47. 54	72, 100
West Virginia	60, 100	61. 47	37, 700
Wisconsin	102, 600	51. 57	96, 300
Wyoming	17, 700	50. 43	17, 400
Guam	41, 200	66⅔	20, 600
Puerto Rico	102, 400	66⅔	51, 200
Virgin Islands	40, 300	66⅔	20, 100

WATER POLLUTION CONTROL AREAS

Mr. MICHEL. You mentioned some place in your testimony 23 major areas that have been designated throughout the country for water pollution control. Would these parallel the Corps of Engineers flood control areas?

Mr. MCCALLUM. In general. I think they may talk about 26. We keep them pretty much coterminous.

Mr. MICHEL. How about the Department of Agriculture in its watershed protection projects? Is there any coordination between your operation and theirs?

Mr. McCALLUM. Oh, yes. Their projects are all submitted to us for review as to pollution, water quality, et cetera.

Mr. MICHEL. Is there a duplication of effort with respect to what you do and what they do?

Mr. McCALLUM. Oh, no. We make our information, as the States do, too, available to them so that they know the quality of water.

GRADUATE FELLOWSHIP GRANTS

Mr. MICHEL. On 106, your mention of grants calls to mind these various research grants, particularly the fellowships, and I see here a twofold increase over last year. What kind of fellowships are these?

Mr. McCALLUM. They are for postgraduate scientists who have the potential to do research.

Mr. MICHEL. How are the recipients actually determined?

Mr. McCALLUM. Applications come in, and they will be screened by a committee of university people.

Mr. MICHEL. Where are most of those fellowships right now? Are they college professors in universities or graduate students in universities?

Mr. McCALLUM. Graduate students. That hasn't been implemented before. We have just implemented this authorization this year.

Mr. MICHEL. Are there any in effect right now?

Mr. McCALLUM. We haven't made them yet. We have several applications.

Mr. KELLY. We make those, as you recall, Mr. Michel, in the spring of the year. You recall we converted the National Institutes of Health fellowships to an advance funding basis in order that we could be sure that we didn't have to award them between the time funds were appropriated and the time school started.

So these are traditionally made now in the spring of the year for the next school year.

Mr. MICHEL. Is this increase here predicated on the number of applications that have been received heretofore?

Mr. McCALLUM. Applications and inquiries.

Mr. MICHEL. That is all, Mr. Chairman.

WEDNESDAY, FEBRUARY 7, 1962.

GRANTS FOR WASTE TREATMENT WORKS CONSTRUCTION

WITNESSES

GORDON E. McCALLUM, CHIEF, DIVISION OF WATER SUPPLY AND POLLUTION CONTROL

DR. ROBERT J. ANDERSON, DEPUTY CHIEF, BUREAU OF STATE SERVICES

DAVID H. HOWELLS, CONSTRUCTION GRANTS BRANCH CHIEF, DIVISION OF WATER SUPPLY AND POLLUTION CONTROL

JAMES F. KELLY, DEPARTMENT BUDGET OFFICER

Program and financing

[In thousands of dollars]

	1961 actual	1962 estimate	1963 estimate
Program by activities: Grants for construction (total program costs—obligations) (object class 41)	45, 586	79, 608	89, 000
Financing:			
Unobligated balance brought forward	−7, 093	−7, 608	−8, 000
Unobligated balance carried forward	7, 608	8, 000	9, 000
New obligational authority (appropriation)	46, 101	80, 000	90, 000

GENERAL STATEMENT

Mr. FOGARTY. Do you have a statement on the Grants for Waste Treatment Works Construction, Mr. McCallum?

Mr. McCALLUM. Yes, sir; I have a statement.

Mr. FOGARTY. We can put that in the record.

(Mr. McCallum's statement is as follows:)

STATEMENT BY CHIEF, DIVISION OF WATER SUPPLY AND POLLUTION CONTROL, ON "GRANTS FOR WASTE TREATMENT WORKS CONSTRUCTION, PUBLIC HEALTH SERVICE"

Mr. Chairman and members of the committee, the Federal Water Pollution Control Act, as amended, authorizes grants to cities and other specified jurisdictions for the construction of necessary treatment works to prevent the discharge of untreated or inadequately treated wastes into any waters. The act authorizes the appropriation of $90 million for fiscal year 1963 and $100 million for fiscal years 1964–1967.

Grants are made to the municipalities sponsoring such projects by the Department of Health, Education, and Welfare. The maximum grant to a single municipality is 30 percent of the cost of the project or $600,000, whichever is smaller. In the case of a multimunicipal project, the grant is based on each community's share of the project cost, under the 30 percent or $600,000 limitation, but the maximum grant for the overall project may not exceed $2.4 million. The 1961 amendments require reallocation of sums allotted to States which, because of lack of projects approved by those States, are not obligated within 6 months following the end of the fiscal year for which allotted. However, when the need for an active project in such State is due in part to any Federal institution or Federal construction activity, an additional grant may be made to the project which will reflect an equitable contribution for the need caused by Federal activity. These additional grants are made from funds otherwise subject to reallocation. The funds remaining after such additional grants have been made are reallotted to States having projects approved for grants in excess of their original allotments.

This grant program has provided significant stimulus to construction of essential waste treatment works. Construction activity rose 62 percent during the first 4 years of the program. Preliminary information indicates a further increase for 1961, with contract awards expected to total $430 million. This, together with other project costs, represents a total investment of about $500 million for waste treatment facilities during the past year. While this is an encouraging increase for the first year of the expanded program, it is considerably short of the annual total required for the abatement of pollution from municipal wastes.

The Conference of State Sanitary Engineers will soon announce the results of its annual survey of the sewage treatment needs of the individual States. Provisional estimates based upon incomplete returns disclose that some 5,000 communities, with a population of 40 million, currently need new waste treatment plants or enlargements and additions to existing plants. An average annual investment of $600 million for 10 years will be required to satisfy this need, replace works that become obsolescent in the same period, and keep pace with the expected population growth.

From the enactment of the Federal Water Pollution Control Act in 1956 to January 15, 1962, an aggregate of 3,236 applications had been approved for grants totaling $267 million thus aiding in the construction of waste treatment works costing $1.55 billion. On January 15 the States reported an additional 2,054 grant requests requiring $227 million in Federal funds. It is estimated that the $90 million requested for fiscal year 1963 will provide grants for 900 projects.

Mr. Chairman, I shall be glad to answer any questions the committee may wish to ask.

BUDGET, 1963

Mr. FOGARTY. Your appropriation for 1962 is $80 million and your request for 1963 is $90 million. That is the maximum authorized by law, isn't it?

Mr. MCCALLUM. That is right.

Mr. FOGARTY. What States if any do you think will not use all of their funds if this amount is appropriated?

Mr. MCCALLUM. I don't know of any that will not.

EXTENT OF APPLICATIONS

Mr. FOGARTY. How much do you estimate would be required if we financed all approvable applications in 1963?

Mr. MCCALLUM. You mean how many projects there are?

Mr. FOGARTY. How many applications do you expect in 1963 and how much would it cost?

Mr. MCCALLUM. On January 15 the States made their annual report of 2,054 grant requests, which would require estimated grants of $227 million.

(Additional information concerning applications for grants, requested by the committee, follows:)

Analyses of Federal funds available for waste treatment works construction in fiscal year 1963, estimated from informal State reports as of Jan. 15, 1962

[In thousands of dollars]

	Federal grants requested by applications on hand in State and DHEW regional offices (1)	Estimate of Federal grants requested by applications in preparation by municipalities (2)	Total, cols. 1 and 2 (3)	Unobligated Federal funds available for additional applications (4)	Estimated 1963 State allocations (5)	Total, cols. 4 and 5 (6)
Total	$85,509	$141,908	$227,417	$44,689	$90,000	$134,689
Alabama	443	3,723	4,166	464	1,911	2,375
Alaska	128	236	364	585	659	1,244
Arizona	232	1,365	1,597	351	1,105	1,456
Arkansas	24	2,665	2,689	1,173	1,670	2,843
California	8,992	------	8,992	3,341	4,480	7,821
Colorado	64	3,283	3,347	217	1,168	1,385
Connecticut	290	4,569	4,859	794	1,165	1,959
Delaware	45	1,077	1,122	520	630	1,150
District of Columbia	------	4,758	4,758	475	713	1,188
Florida	2,094	------	2,094	1,520	2,008	3,528
Georgia	------	1,349	1,349	1,012	1,986	2,998
Hawaii	792	2,654	3,446	772	896	1,668
Idaho	274	296	570	919	1,034	1,953
Illinois	2,313	6,614	8,927	352	3,082	3,434
Indiana	4,620	730	5,350	173	1,883	2,056
Iowa	2,510	2,591	5,101	1,078	1,466	2,544
Kansas	137	1,544	1,681	498	1,314	1,812
Kentucky	67	4,218	4,285	1,328	1,773	3,101
Louisiana	2,535	5,659	8,194	340	1,769	2,109
Maine	------	1,272	1,272	989	1,113	2,102
Maryland	1,702	1,420	3,122	1,093	1,428	2,521
Massachusetts	1,653	6,791	8,444	834	1,908	2,742
Michigan	14,149	------	14,149	1,116	2,610	3,726
Minnesota	1,855	------	1,855	323	1,623	1,946
Mississippi	99	2,189	2,288	1,721	1,936	3,657
Missouri	9,440	------	9,440	707	1,805	2,512
Montana	710	167	877	750	926	1,676
Nebraska	720	1,249	1,969	122	1,118	1,240
Nevada	37	599	636	544	643	1,187
New Hampshire	226	6,561	6,787	577	930	1,507
New Jersey	3,067	3,012	6,079	858	2,089	2,947
New Mexico	49	1,393	1,442	305	1,091	1,396
New York	1,414	11,655	13,069	987	4,725	5,712
North Carolina	4,577	10,532	15,109	664	2,191	2,855
North Dakota	------	464	464	959	1,118	2,077
Ohio	2,959	2,257	5,216	1,442	3,057	4,499
Oklahoma	1,048	2,575	3,623	831	1,448	2,279
Oregon	1,047	1,209	2,256	54	1,169	1,223
Pennsylvania	4,928	6,384	11,312	551	3,489	4,040
Rhode Island	250	2,608	2,858	580	934	1,514
South Carolina	------	2,812	2,812	1,574	1,774	3,348
South Dakota	------	564	564	1,000	1,125	2,125
Tennessee	1,836	3,576	5,412	444	1,910	2,354
Texas	1,997	7,497	9,494	------	3,177	3,177
Utah	65	1,005	1,070	513	1,058	1,571
Vermont	------	3,385	3,385	759	976	1,735
Virginia	1,462	5,970	7,432	1,594	1,834	3,428
Washington	991	1,121	2,112	971	1,386	2,357
West Virginia	1,121	6,158	7,279	802	1,386	2,188
Wisconsin	2,491	------	2,491	139	1,715	1,854
Wyoming	56	47	103	712	801	1,513
Guam	------	------	------	1,256	1,413	2,669
Puerto Rico	------	105	105	1,758	1,978	3,736
Virgin Islands	------	------	------	1,248	1,404	2,652

FUNDS NEEDED FOR REASONABLE WATER POLLUTION CONTROL

Mr. Fogarty. At the current rate of progress, if we appropriate the maximum authorized by law, when will we reach a reasonably good level of water pollution control?

Mr. McCallum. We hope that with the appropriation that is authorized beginning in 1964 of $100 million a year, if the same ratio of local to Federal funds continues at 5 to 1, we will be about at the $600 million level in construction in municipal waste treatment plants which we and the States have for a long time agreed is necessary to keep pace with the problem.

Mr. Fogarty. Do you think $100 million a year will be sufficient?

Mr. McCallum. It should be if past experience prevails.

Mr. Fogarty. Mr. Marshall?

FORMULA FOR DISTRIBUTING FEDERAL FUNDS

Mr. Marshall. On page 147 of your justifications you show that the allocations to the District of Columbia have been going up, and I note that there is approximately half as much being spent in the District of Columbia as in the entire State of Iowa.

How do you arrive at that sort of distribution of Federal funds?

Mr. McCallum. The formula for the allocation to the jurisdictions is provided in the act. You will note that Puerto Rico, for example, gets a very substantial amount of funds, too. Half is based on the population, and half on per capita income.

Mr. Marshall. On per capita income and population, the District of Columbia on that basis would get half as much as the entire State of Iowa, and West Virginia is in about the same category?

Mr. McCallum. That is evidently the case under the formula.

The amendments last year provided for reallocation of these funds so that in the event they are not all used by places like Puerto Rico, they can be reallocated among other States that do have a need for them.

Mr. Marshall. Would you supply for the record at this point the basis you used for giving the District of Columbia such favorable treatment? Could you do that?

Mr. Kelly. Yes, sir. We will insert the population and per capita factors that gave rise to the allocation.

Mr. Marshall. I would like an explanation in the record on that.

Mr. Kelly. Yes.

(The requested explanation follows:)

Distribution formula for District of Columbia grant allocation

State	Population 1960 (a)	Percent distribution of 1960 population (b)	3-year average per capita income 1958–60 (c)	Ratio of U.S. per capita income to each State's per capita income (d)	Percent distribution of ratio of U.S. per capita income to each State's per capita income (e)	1960 population $45,000,000 × col. (b) (f)	Ratio of U.S. per capita income to each State's per capita income $45,000,000 × col. (e) (g)	Total allocation (col. (f)+ col. (g)) (h)
District of Columbia	763, 956	0. 4203	$2, 878	0. 7467	1. 1976	$189, 135	$538, 920	$728, 055

The allotment formula contained in the Federal Water Pollution Control Act for grants for construction of sewage treatment works follows, together with the distribution for the District of Columbia:

"SEC. 6(c) * * * The sums appropriated pursuant to subsection (d) for any fiscal year shall be allotted by the Secretary from time to time, in accordance with regulations as follows: (1) 50 per centum of such sums in the ratio that the population of each State bears to the population of all the States, and (2) 50 per centum of such sums in the ratio that the quotient obtained by dividing the per capita income of the United States by the per capita income of each State bears to the sum of such quotients for all the States * * *. For purposes of this section, population shall be determined on the basis of the latest decennial census for which figures are available, as certified by the Secretary of Commerce, and per capita income for each State and for the United States shall be determined on the basis of the average of the per capita incomes of the States and of the continental United States for the three most recent consecutive years for which satisfactory data are available from the Department of Commerce."

DISTRICT OF COLUMBIA WASTE TREATMENT

Mr. MARSHALL. Could you tell me this, Mr. McCallum: You are spending quite a little money here in the District of Columbia. What is the situation as far as the waste treatment in this area is concerned? Is it showing any improvement?

Mr. MCCALLUM. Yes, I think it is definitely showing improvement. The treatment works which was built at Blue Plains has been modernized and brought up to date so that it is providing about 85 percent treatment at this time—much better than it was a few years back.

We, as you may recall, do have an enforcement case in the District of Columbia; and they are maintaining a schedule in correcting the situations that were brought out in that instance, which involved the construction of a rather large interceptor along the river front which will prevent muct of the storm overflow that carried pollution into the Potomac.

That is supposed to be completed by 1966, and that will reduce materially the pollution that is going into the Potomac at this time.

Mr. MARSHALL. Do you think we would be able to expect in the near future that there would be some reduction in this fund to the District of Columbia? When do you complete your work?

Mr. KELLY. The way the act works, Mr. Marshall, is that the law establishes the basis on which the distribution is made. But if it were to occur that the District of Columbia did not require these funds in order to further its waste treatment program, they would then so certify to this effect to the Public Health Service and they would then become available for redistribution.

The law authorizes that in January, 18 months after the commencement of the fiscal year, those funds which the States certify will not be used will be made available for redistribution to those States evidencing a need for funds to a greater extent than to the State to which the initial allocation was made available.

So, in this way, as the need changes and as a saturation point is reached in one community, funds are made available for other jurisdictions to help meet their needs.

Mr. MARSHALL. Thank you, Mr. Kelly. That was a fine explanation. But I am wondering when we are going to reach the saturation point in the District of Columbia. Does anybody have any idea when that might take place? Do you know, Mr. McCallum?

Mr. McCallum. I couldn't say precisely. But I hope that by 1966 anyway, when they have completed the schedule that was agreed to in the enforcement case, they certainly will have many of these problems solved.

WASTE TREATMENT COOPERATION IN WASHINGTON METROPOLITAN AREA

Mr. Marshall. What kind of cooperation are you getting from the adjoining States of Maryland and Virginia on this problem?

Mr. McCallum. The plan we have had for the Potomac River, the reduction of pollution, is moving along. I think that cooperation is good. The schedule on the pollution case on the Potomac is being maintained by both Maryland and Virginia.

Mr. Marshall. Thank you, Mr. Chairman.

Mr. Fogarty. Mr. Michel?

LIMITATIONS FOR WASTE TREATMENT GRANTS

Mr. Michel. The act provides for a maximum of $600,000 for any one project for grants for waste treatment facilities, does it not?

Mr. McCallum. That is right—or 30 percent, whichever is less.

Mr. Michel. And four municipalities, communities, or States, could in a cooperative venture get a maximum of four times that amount, meaning $2,400,000?

Mr. McCallum. Yes; that is the ceiling if they go together.

Mr. Michel. In the past year how many of those combined applications have been received?

Mr. McCallum. Three have been approved.

Mr. Michel. Do you know offhand what those areas would be?

Mr. Howells. San Diego; Madison, Wis., Metropolitan Sewer District; and Flint, Mich.

Mr. Michel. Are there applications for additional ones this year?

Mr. Howells. Yes, sir.

Mr. Michel. How many additional applications for these cooperative ventures would be on hand at the moment?

Mr. Howells. I couldn't answer that at the moment.

Mr. Michel. Could you supply that for the record, please.

(The requested information follows:)

Number of Additional Cooperative Project Applications on Hand at the Present Time

There are 17 additional applications, making a total of 20 applications for such projects on hand in Public Health Service regional offices and the State agencies.

Mr. Michel. What is the average request?

Mr. McCallum. The size of the request?

Mr. Michel. Yes.

Mr. McCallum. I think about $80,000 or $85,000.

NUMBER OF PROJECTS BY STATES

Mr. Michel. Would you supply for the record by States the number of projects in the State that were approved this last year.

(The requested information follows:)

Number of projects for construction of sewage treatment works, by States, Jan. 1, 1961, to Dec. 31, 1961

State	Number
Total	681
Alabama	23
Alaska	2
Arizona	10
Arkansas	21
California	18
Colorado	15
Connecticut	3
Delaware	3
District of Columbia	2
Florida	10
Georgia	12
Hawaii	5
Idaho	7
Illinois	32
Indiana	13
Iowa	11
Kansas	21
Kentucky	15
Louisiana	12
Maine	3
Maryland	6
Massachusetts	20
Michigan	10
Minnesota	18
Mississippi	20
Missouri	20
Montana	4
Nebraska	18
Nevada	9
New Hampshire	7
New Jersey	9
New Mexico	9
New York	41
North Carolina	10
North Dakota	12
Ohio	14
Oklahoma	26
Oregon	11
Pennsylvania	17
Rhode Island	5
South Carolina	20
South Dakota	18
Tennessee	16
Texas	45
Utah	6
Vermont	4
Virginia	12
Washington	9
West Virginia	7
Wisconsin	17
Wyoming	1
Guam	---
Puerto Rico	2
Virgin Islands	---

Mr. MICHEL. For the sake of the record, the average request nationwide is for $85,000?

Mr. MCCALLUM. Yes, approximately that.

Mr. MICHEL. What percentage of the total number of applications would be for the maximum amount? Would you just simply supply that figure for the record.

Mr. MCCALLUM. I think it would be very small but we can supply that.

(The requested information follows:)

PERCENTAGE OF TOTAL NUMBER OF APPLICATIONS WHICH WOULD BE FOR MAXIMUM AMOUNT ALLOWED

Of the total number of applications approved to date, 10.7 percent requested grants in the maximum amount.

Mr. MICHEL. Would you also supply for the record the total figure of those that were under $50,000?

Mr. McCALLUM. Yes, sir.

(The requested information follows:)

TOTAL NUMBER OF APPROVED APPLICATIONS THAT WERE UNDER $50,000

Of the 3,274 approved as of January 31, 1962, 1,601 received grants in the amount of $50,000 or less.

Mr. MICHEL. That is all, Mr. Chairman.

LIST OF APPROVED PROJECTS

Mr. FOGARTY. I think those are good statistics to have but I think it would be of value to the committee and to many Members to have in the record this complete list of approved projects as of December 31, 1961.

(The complete list follows:)

EXPLANATORY NOTES

STATUS

Status of projects is indicated as follows:

1) Project approved (Grant offer made)
2) Project under construction
3) Project completed

LOCATION

Listed alphabetically by State

NAME OF APPLICANT

As listed in the project application. In multi-municipal projects, participating communities are indented under main applicant.

POPULATION CODE

Federal grants made on a basis of population:

1) Less than 2,500
2) 2,500 to 5,000
3) 5,001 to 10,000
4) 10,001 to 25,000
5) 25,001 to 50,000
6) 50,001 to 125,000
7) 125,001 to 250,000
8) 250,001 to 500,000
9) 500,001 and Over

DESCRIPTION

Description of the project as outlined in project application:

1) Treatment Plant
2) Outfall Sewer
3) Intercepting Sewer
4) Other
5) Treatment Plant, Outfall Sewer and Intercepting Sewer
6) Treatment Plant and Outfall Sewer
7) Treatment Plant and Intercepting Sewer
8) Outfall Sewer and Intercepting Sewer
9) Waste Stabilization Ponds with Appurtenances

TYPE CONSTRUCTION

Type of construction as described in the application:

1) New
2) Extension or addition
3) Remodeling and alteration
4) New, extension and remodeling
5) New and extension
6) New and remodeling
7) Extension and remodeling

ESTIMATED COST OF PROJECT

Estimated project cost in which Federal grant funds are participating.

FEDERAL GRANT OFFER

Amount of the Federal grant offered to the Applicant.

PROJECT APPROVED

Month and year in which the project was approved and the offer of a grant was made to the Applicant.

PROJECT REGISTER - COMPLETE LISTING

ALL PROJECTS APPROVED UNDER SECTION 6 OF THE FEDERAL WATER POLLUTION CONTROL ACT

STATUS	LOCATION	NAME OF APPLICANT	POP CODE	DESCRIPTION	TYPE CONST	ESTIMATED ELIGIBLE COST OF PROJECT	FEDERAL GRANT OFFER	PROJECT APPROVED MONTH-YEAR	
	ALABAMA								
3	ALABASTER	TOWN OF ALABASTER	1	6	1	44,577	13,373.31	5	59
3	ALBERTVILLE	CITY OF ALBERTVILLE	3	1	2	253,750	76,125.05	1	60
1	ALEXANDER CITY	CITY OF ALEXANDER CITY	4	9	1	316,200	94,860.00	12	61
3	ANDALUSIA	CITY OF ANDALUSIA	3	7	1	791,867	237,560.16	7	58
2	ATHENS	CITY OF ATHENS	3	7	1	763,872	229,161.63	3	58
2	ATMORE	CITY OF ATMORE	3	6	1	384,939	115,481.65	10	59
3	AUBURN	CITY OF AUBURN	4	7	1	960,713	250,000.00	6	57
1	BOAZ	CITY WATER AND SEWER BD	2	7	2	505,100	151,530.00	11	61
1	BREWTON	CITY OF BREWTON	3	9	1	440,000	132,000.00	10	61
2	BRUNDIDGE	CITY OF BRUNDIDGE	2	9	1	221,678	66,503.43	2	60
1	BUTLER	TOWN OF BUTLER	1	9	1	292,300	87,690.00	1	61
3	CALERA	CITY OF CALERA	1	7	1	64,486	19,345.97	9	60
1	CHICKASAW	CITY OF CHICKASAW	4	9	5	537,000	161,100.00	12	61
3	CLANTON	CITY OF CLANTON	2	6	1	252,884	75,865.35	4	57
1	CLAYTON	TOWN OF CLAYTON W W S B	1	9	1	109,000	32,700.00	12	61
1	COLUMBIANA	CITY OF COLUMBIANA	1	9	5	47,285	14,185.00	11	61
2	CULLMAN	CITY OF CULLMAN	3	7	4	1,494,000	250,000.00	10	60
3	DECATUR	CITY OF DECATUR	4	7	1	1,512,500	250,000.00	11	57
2	DEMOPOLIS	CITY OF DEMOPOLIS	3	5	1	715,000	214,500.00	4	59
3	DOTHAN	CITY OF DOTHAN	4	6	1	756,309	226,892.61	7	58
1	DOTHAN	CITY OF DOTHAN	5	3	1	340,557	102,167.24	11	61
3	ENTERPRISE	CITY OF ENTERPRISE	3	5	1	444,544	133,363.11	8	57
3	EUTAW	CITY OF EUTAW	1	9	1	68,020	20,406.08	12	57
2	EVERGREEN	CITY OF EVERGREEN	2	9	1	310,000	93,000.00	9	60
1	FALKVILLE	TOWN OF FALKVILLE	1	9	1	100,000	30,000.00	12	61
1	FLORENCE	CITY OF FLORENCE	5	3	2	256,011	76,803.28	12	61
1	FOLEY	UTILITIES BD OF FOLEY	2	9	5	205,050	61,515.00	11	61

3	FORT DEPOSIT	TOWN OF FORT DEPOSIT	1	5	1	31,187	9,356.16	12	58
1	GORDO	TOWN OF GORDO	1	9	2	64,200	19,260.00	11	61
2	GREENSBORO	CITY OF GREENSBORO	1	9	1	286,900	86,070.00	2	59
3	GUNTERSVILLE	CITY OF GUNTERSVILLE	1	5	1	392,876	117,862.71	2	57
1	HALEYVILLE	CITY OF HALEYVILLE	2	5	1	412,000	123,600.00	12	59
1	HARTFORD	TOWN OF HARTFORD	1	9	1	52,292	15,687.51	3	61
3	HARTSELLE	CITY OF HARTSELLE	2	1	2	94,404	28,321.06	3	58
2	HEFLIN	TOWN OF HEFLIN	1	9	1	169,000	50,700.00	11	60
3	HUNTSVILLE	CITY OF HUNTSVILLE	4	1	1	1,750,000	250,000.00	10	57
2	JASPER	CITY OF JASPER	3	7	1	991,000	250,000.00	2	60
1	JASPER	CITY OF JASPER	4	3	2	109,000	32,700.00	11	61
3	JEFFERSON CO	COUNTY COMMISSIONERS	5	1	1	1,903,750	250,000.00	8	57
1	LOXLEY	TOWN OF LOXLEY	1	9	1	83,350	25,005.00	11	61
1	MOBILE	BD WATER SEWER COMM	7	5	1	1,031,911	250,000.00	11	61
3	MOBILE	BOARD WATER SEWER COM	7	1	1	2,208,477	250,000.00	2	57
2	MONTEVALLO	CITY OF MONTEVALLO	1	6	1	270,659	81,197.00	10	59
2	MOULTON	TOWN OF MOULTON	1	1	1	150,220	45,066.00	12	59
1	MUSCLE SHOALS	UTIL BD MUSCLE SHOALS	2	5	1	400,000	120,000.00	11	61
2	NORTHPORT	CITY OF NORTHPORT	2	6	1	333,000	99,900.00	8	57
3	ONEONTA	CITY OF ONEONTA	2	3	1	138,504	41,551.20	1	60
2	OPP	CITY OF OPP	3	9	1	265,360	79,608.00	4	61
1	OZARK	UTILITIES BD CITY OZARK	3	9	1	214,896	64,468.80	10	61
1	PARRISH	TOWN OF PARRISH	1	9	5	50,000	15,000.00	12	61
3	PELL CITY	CITY OF PELL CITY	1	4	1	234,084	70,225.32	12	59
3	PRATTVILLE	CITY OF PRATTVILLE	2	5	1	683,026	204,907.75	10	58
2	PRICHARD	CITY WATER AND SEWER BD	4	1	1	908,500	250,000.00	4	61
3	ROBERTSDALE	TOWN OF ROBERTSDALE	1	1	6	166,028	49,808.53	12	59
2	SARALAND	CITY OF SARALAND	2	7	1	196,000	58,800.00	10	61
3	TROY	CITY OF TROY	3	7	1	556,185	166,855.52	1	57
3	TUSCALOOSA	ALABAMA STATE HOSPITALS	5	9	1	27,898	8,369.46	7	60
3	TUSCALOOSA	CITY OF TUSCALOOSA	5	1	1	1,303,000	250,000.00	6	57
3	TUSCUMBIA	CITY OF TUSCUMBIA	3	5	1	520,953	156,285.84	9	58
3	UNION SPRINGS	CITY OF UNION SPRINGS	2	6	1	154,920	46,476.09	10	59
1	WARRIOR	CITY OF WARRIOR	1	9	1	115,000	34,500.00	12	61
2	WINFIELD	CITY OF WINFIELD	1	5	1	140,000	42,000.00	12	59
1	YORK	CITY OF YORK	2	9	5	195,000	58,500.00	11	61

STATUS	LOCATION	NAME OF APPLICANT	POP CODE	DESCRIP TION	TYPE CONST	ESTIMATED ELIGIBLE COST OF PROJECT	FEDERAL GRANT OFFER	PROJECT APPROVED MONTH-YEAR
	ALASKA							
2	BETHEL	CITY OF BETHEL	1	7	1	88,020	26,400.00	12 60
2	COLLEGE	UNIVERSITY OF ALASKA	1	1	1	89,305	26,780.00	3 61
2	FAIRBANKS	CITY OF FAIRBANKS	3	7	1	1,223,231	250,000.00	7 59
2	FAIRBANKS	CITY OF FAIRBANKS	4	3	1	275,547	82,660.00	3 61
	ARIZONA							
3	AVONDALE	CITY OF AVONDALE	2	9	1	260,865	78,259.00	12 57
3	AVONDALE	CITY OF AVONDALE	2	3	1	22,415	6,720.00	12 59
3	CASA GRANDE	CITY OF CASA GRANDE	2	9	1	306,785	92,035.54	4 57
3	CLARKDALE	TOWN OF CLARKDALE	1	7	1	23,511	7,050.00	2 61
3	DOUGLAS	CITY OF DOUGLAS	3	3	1	31,345	9,403.57	10 58
2	DOUGLAS	CITY OF DOUGLAS	4	8	2	22,799	6,830.00	8 61
3	DUNCAN	TOWN OF DUNCAN	1	9	1	88,994	26,690.00	6 58
3	FLAGSTAFF	CITY OF FLAGSTAFF	3	3	1	472,896	141,869.00	7 59
1	FLAGSTAFF	CITY OF FLAGSTAFF	4	9	5	310,000	82,300.00	11 61
3	GLENDALE	CITY OF GLENDALE	3	8	1	391,125	117,337.60	10 57
2	HOLBROOK	TOWN OF HOLBROOK	1	1	7	83,299	24,890.00	6 60
1	MAMMOTH	TOWN OF MAMMOTH	1	9	1	140,301	42,090.00	11 61
3	MESA	CITY OF MESA	4	1	2	434,300	130,290.00	7 59
2	PHOENIX	CITY OF PHOENIX	6	1	2	1,650,000	250,000.00	6 60
3	PHOENIX	CITY OF PHOENIX	6	3	1	827,211	247,650.00	10 58
3	PHOENIX	CITY OF PHOENIX	6	6	1	602,134	180,000.00	10 57
3	PHOENIX	CITY OF PHOENIX	6	3	1	804,784	241,430.00	1 60
2	PHOENIX	CITY OF PHOENIX	8	9	1	833,333	250,000.00	8 61
1	PIMA CO	SAN DIST 1 PIMA COUNTY	1	3	2	73,716	22,110.00	8 61
3	PIMA CO	SAN DIST 1 PIMA COUNTY	3	3	1	132,346	39,700.00	11 59
1	PIMA CO	SAN DIST 1 PIMA COUNTY	1	3	1	150,000	45,000.00	11 60

3	SCOTTSDALE	TOWN OF SCOTTSDALE	1	3	1	60,319	18,090.00	4	60
3	SCOTTSDALE	TOWN OF SCOTTSDALE	1	6	1	475,518	142,655.35	10	57
3	SCOTTSDALE	TOWN OF SCOTTSDALE	3	3	1	71,611	21,480.00	1	61
1	SCOTTSDALE	CITY OF SCOTTSDALE	4	1	1	1,026,653	250,000.00	8	61
1	SCOTTSDALE	CITY OF SCOTTSDALE	4	3	2	613,865	184,150.00	8	61
3	SHOW LOW	CITY OF SHOW LOW	1	9	1	133,044	39,910.00	7	57
3	SIERRA VISTA	TOWN OF SIERRA VISTA	6	6	1	83,892	25,167.00	5	57
3	SPRINGERVILLE	TOWN OF SPRINGERVILLE	1	5	1	101,421	30,420.00	4	58
3	TEMPE	CITY OF TEMPE	3	1	7	237,155	71,146.51	1	57
3	TEMPE	CITY OF TEMPE	3	3	1	49,365	14,809.60	7	58
3	TUCSON	SAN DIST 1 PIMA COUNTY	1	5	1	26,850	8,055.00	5	58
3	TUCSON	SAN DIST 1 PIMA COUNTY	5	3	1	97,417	29,225.21	1	58
3	TUCSON	CITY OF TUCSON	5	1	2	1,415,552	250,000.00	10	58
3	TUCSON	SAN DIST 1 PIMA COUNTY	5	3	1	316,675	94,677.55	3	57
1	TUCSON	CITY OF TUCSON	7	3	1	237,650	71,290.00	2	61
1	TUCSON	CITY OF TUCSON	7	3	1	226,756	68,020.00	11	60
3	WICKENBURG	TOWN OF WICKENBURG	1	1	2	19,425	5,827.50	10	57
3	WILLCOX	CITY OF WILLCOX	1	6	4	61,349	18,404.00	10	59
3	WINSLOW	CITY OF WINSLOW	3	6	1	396,585	118,581.00	3	57
	ARKANSAS								
2	ALTHEIMER	SEWER IMP DISTRICT 1	1	5	1	73,089	21,926.66	11	60
1	ASHDOWN	CITY OF ASHDOWN	2	9	1	120,020	36,005.86	6	61
1	BAY	CITY OF BAY	1	5	1	50,443	15,132.90	11	60
2	BEARDEN	CITY OF BEARDEN	1	9	1	43,536	13,060.78	5	60
3	BENTONVILLE	CITY OF BENTONVILLE	2	5	4	311,651	93,495.32	7	59
3	BENTONVILLE	CITY OF BENTONVILLE	2	2	1	115,595	34,678.47	1	58
3	BENTON	CITY OF BENTON	3	7	7	229,335	68,800.62	8	58
3	BENTON HOSP	ARKANSAS STATE HOSPITAL	3	1	1	141,048	42,211.50	7	57
1	BERRYVILLE	CITY OF BERRYVILLE	1	7	2	141,824	42,547.06	8	61
3	BRADFORD	CITY OF BRADFORD	1	9	1	56,969	17,090.78	7	59
1	BRINKLEY	CITY OF BRINKLEY	2	1	2	35,291	10,587.37	5	60

STATUS	LOCATION	NAME OF APPLICANT	POP CODE	DESCRIP TION	TYPE CONST	ESTIMATED ELIGIBLE COST OF PROJECT	FEDERAL GRANT OFFER	PROJECT APPROVED MONTH-YEAR
2	CAMDEN	CITY OF CAMDEN	4	7	1	492,027	147,606.00	8 58
1	CARAWAY	CITY OF CARAWAY	1	9	1	79,843	23,953.00	5 59
2	CARLISLE	CITY OF CARLISLE	1	9	1	85,996	25,798.80	5 60
2	CHARLESTON	CITY OF CHARLESTON	1	9	5	19,814	5,944.00	7 60
3	COLLEGE HGHTS	ARKANSAS A M COLLEGE	1	7	1	75,276	22,582.88	2 58
3	CONWAY	CITY OF CONWAY	3	7	5	83,584	25,063.31	5 58
2	CONWAY	CITY OF CONWAY	3	1	2	121,748	35,722.50	12 59
2	CRAWFORDSVL	TOWN OF CRAWFORDSVILLE	1	9	1	69,406	20,821.77	4 59
3	CROSSETT	CITY OF CROSSETT	2	7	5	32,424	9,727.12	3 59
3	DANVILLE	CITY OF DANVILLE	1	9	1	61,251	18,375.32	2 60
3	DE QUEEN	CITY OF DE QUEEN	2	7	1	194,745	58,423.54	2 60
3	DECATUR	CITY OF DECATUR	1	9	1	51,617	15,485.16	7 59
2	DES ARC	TOWN OF DES ARC	1	7	1	52,642	15,792.55	12 60
3	DEWITT	CITY OF DEWITT	2	3	1	44,012	13,203.51	8 59
2	EL DORADO	CITY OF EL DORADO	4	5	1	469,201	140,760.23	6 59
3	ELAINE	CITY OF ELAINE	1	5	1	59,850	17,954.99	10 57
1	FAULKNER LAKE	CITY OF N LITTLE ROCK	5	6	1	1,124,500	250,000.00	1 61
3	FAYETTEVILLE	CITY OF FAYETTEVILLE	4	5	6	923,680	250,000.00	5 58
3	FORDYCE	CITY OF FORDYCE	2	3	1	17,817	5,344.98	7 59
1	FORREST CITY	SEWER IMPROVEMENT DIS 1	1	9	1	33,379	10,013.63	10 61
3	FORREST CITY	CITY OF FORREST CITY	3	3	1	58,573	17,571.80	11 59
3	GEYER SPRINGS	GEYER SPRINGS SID 86	1	3	1	36,130	10,839.08	3 60
3	GILLETT	GILLETT SEW IMP DIST 1	1	9	1	41,957	12,587.03	7 59
2	GOULD	CITY OF GOULD	1	9	1	98,603	29,580.99	4 59
2	GREENWOOD	CITY OF GREENWOOD	1	9	1	88,750	26,625.01	8 59
3	GREEN FOREST	CITY OF GREEN FOREST	1	1	7	66,570	19,970.96	6 58
2	HAMBURG	CITY OF HAMBURG	2	5	1	106,343	31,902.96	8 59
3	HARRISON	CITY OF HARRISON	3	2	1	62,907	18,871.98	4 58
1	HEBER SPRINGS	CITY OF HEBER SPRINGS	1	9	1	99,500	29,850.00	10 61
2	HELENA	CITY OF HELENA	1	7	1	508,722	152,616.70	2 61
3	HOLLY GROVE	CITY OF HOLLY GROVE	1	6	1	56,293	16,725.38	7 58
1	HOPE	SEWER IMPROVEMENT DIST3	3	3	1	25,961	7,788.25	8 60
1	HUMPHREY	TOWN OF HUMPHREY	1	9	1	74,521	22,356.17	7 59

3	HUTTIG	TOWN OF HUTTIG	1	5	1	38,232	11,469.69	7	57
2	JACKSONVILLE	CITY OF JACKSONVILLE	1	1	7	85,786	25,735.80	2	61
3	JACKSONVILLE	CITY OF JACKSONVILLE	1	5	1	171,016	51,304.93	7	57
3	JONESBORO	CITY WATER LIGHT PLANT	4	7	1	624,823	187,500.00	7	57
1	JUDSONIA	CITY OF JUDSONIA	1	9	1	72,727	21,818.00	10	60
3	JUNCTION CITY	TOWN OF JUNCTION CITY	1	5	1	78,150	22,630.57	8	59
1	KENSETT	TOWN OF KENSETT	1	9	1	71,598	20,000.00	1	59
1	LAKE CITY	TOWN OF LAKE CITY	1	9	1	75,585	22,675.00	8	61
3	LAKE VILLAGE	CITY OF LAKE VILLAGE	1	5	1	184,800	55,439.85	11	57
1	LITTLE ROCK	PULASKI CO 12ST SID 2 3	1	3	1	17,027	5,108.11	10	61
2	LITTLE ROCK	FORBING RD SEWR IMP DIS	1	3	1	163,633	49,090.00	6	61
1	LITTLE ROCK	BASE LINE SEWER IMP D	2	3	1	744,744	223,423.20	9	61
3	LITTLE ROCK	CITY OF LITTLE ROCK	6	3	1	2,697,997	250,000.00	8	58
3	LITTLE ROCK	CITY OF LITTLE ROCK	6	3	1	102,514	30,754.06	3	60
3	LITTLE ROCK	CITY OF LITTLE ROCK	6	6	1	2,126,000	250,000.00	7	57
1	MAGNOLIA	CITY OF MAGNOLIA	4	9	2	58,503	17,551.03	6	61
3	MALVERN	CITY OF MALVERN	3	7	4	55,575	16,672.45	4	57
1	MARIANNA	CITY OF MARIANNA	3	3	1	12,376	3,712.80	9	61
3	MARMADUKE	CITY OF MARMADUKE	1	9	1	44,689	13,406.66	8	60
3	MARSHALL	CITY OF MARSHALL	1	6	1	46,514	13,954.26	6	57
3	MCGEHEE	CITY OF MCGEHEE	2	1	1	217,819	65,345.67	2	57
3	MENA	CITY OF MENA	2	7	1	194,142	58,242.64	2	57
1	MINERAL SPRING	CITY OF MINERAL SPRINGS	1	9	1	31,704	9,511.17	11	59
3	MORRILTON	CITY OF MORRILTON	3	9	1	256,468	76,940.49	8	57
3	MURFREESBORO	CITY OF MURFREESBORO	1	9	4	12,787	3,836.16	7	57
2	MURFREESBORO	CITY OF MURFREESBORO	1	9	4	59,615	17,884.38	8	60
1	N LITTLE ROCK	CITY OF N LITTLE ROCK	5	7	1	54,600	16,380.00	1	61
3	PANGBURN	CITY OF PANGBURN	1	5	1	30,680	9,168.60	1	58
3	PARKIN	CITY OF PARKIN	1	7	4	14,099	4,229.83	9	57
2	PEA RIDGE	CITY OF PEA RIDGE	1	9	1	57,400	17,220.00	2	61
1	PIGGOTT	CITY OF PIGGOTT	2	9	1	153,663	46,098.90	6	59
1	PINE BLUFF	SANITARY SEWER COMM	5	9	1	950,000	250,000.00	8	60
2	POCAHONTAS	CITY OF POCAHONTAS	2	5	1	183,000	54,900.00	7	59

STATUS	LOCATION	NAME OF APPLICANT	POP CODE	DESCRIP TION	TYPE CONST	ESTIMATED ELIGIBLE COST OF PROJECT	FEDERAL GRANT OFFER	PROJECT APPROVED MONTH-YEAR	
2	PULASKI CO	SEWER IMP DISTRICT 9	1	3	1	167,152	50,145.50	11	60
3	ROGERS	CITY OF ROGERS	2	5	1	430,788	129,000.00	5	59
2	SEARCY	BOARD PUBLIC UTILITIES	3	9	1	226,246	67,873.80	8	61
3	SEARCY	BOARD PUBLIC UTILITIES	3	7	4	102,738	30,821.44	7	57
1	SHERIDAN	CITY OF SHERIDAN	1	9	5	136,767	41,030.00	8	60
2	SHERWOOD	CITY OF SHERWOOD	1	5	1	146,604	43,981.10	7	59
1	SHILCOTTE BYU	CITY OF N LITTLE ROCK	5	5	1	816,080	244,824.00	1	61
3	SILOAM SPRINGS	CITY OF SILOAM SPRINGS	2	5	5	185,471	55,641.20	5	59
2	SILOAM SPRINGS	CITY OF SILOAM SPRINGS	2	3	2	29,000	8,700.00	3	61
2	SMACKOVER	CITY OF SMACKOVER	1	9	1	205,704	61,711.32	7	59
2	SPARKMAN	TOWN OF SPARKMAN	1	6	1	44,372	13,311.60	11	57
2	SPRINGDALE	CITY OF SPRINGDALE	3	4	2	22,000	6,600.00	2	61
3	SPRINGDALE	CITY OF SPRINGDALE	3	1	2	242,677	72,803.24	3	57
1	STEPHENS	CITY OF STEPHENS	1	9	1	23,890	7,167.00	4	60
1	STRONG	CITY OF STRONG	1	5	1	45,278	13,583.00	8	61
3	STUTTGART	CITY OF STUTTGART	3	8	1	95,722	28,716.55	5	59
3	TEXARKANA	CITY OF TEXARKANA	5	5	3	891,700	250,000.00	7	60
3	TEXARKANA	CITY OF TEXARKANA	4	8	1	67,168	19,716.60	5	58
1	TURRELL	TOWN OF TURRELL	1	9	1	66,628	19,088.33	5	59
1	VAN BUREN	CITY OF VAN BUREN	3	5	4	572,284	171,685.20	7	60
2	WALDRON	CITY OF WALDRON	1	9	4	48,860	14,658.00	8	61
3	WALNUT RIDGE	CITY OF WALNUT RIDGE	2	9	1	165,455	49,636.38	4	59
3	WARREN	CITY OF WARREN	3	7	1	295,572	88,671.74	12	57
3	WEINER	CITY OF WEINER	1	5	1	55,691	16,707.19	9	57
3	WYNNE	CITY OF WYNNE	2	4	1	60,089	18,026.71	12	59
	CALIFORNIA								
3	ALAMEDA	CITY OF ALAMEDA	6	3	1	41,549	12,464.45	5	57
2	ALVISO	CITY OF ALVISO	1	7	1	262,132	60,690.00	8	61

3	ARCATA	CITY OF ARCATA	2	1	7	420,500	102,000.00	5	57
3	ATWATER	CITY OF ATWATER	2	6	1	97,166	29,149.83	9	58
2	BAYSHORE	BAYSHORE SANITARY DIST	2	4	2	278,571	83,570.00	2	61
2	BELVEDERE	CITY OF BELVEDERE	1	8	1	266,917	48,630.00	3	61
3	BENICIA	CITY OF BENICIA	3	5	1	1,007,675	250,000.00	3	58
3	BISHOP	CITY OF BISHOP	2	7	5	129,427	31,332.00	2	60
2	BRAWLEY	CITY OF BRAWLEY	4	6	1	236,600	67,500.00	3	61
3	CALIPATRIA	CITY OF CALIPATRIA	1	9	1	80,153	24,030.00	3	61
3	CALISTOGA	CITY OF CALISTOGA	1	1	1	264,602	78,450.00	7	60
3	CAMARILLO	CAMARILLO SAN DIST	3	6	1	571,185	112,711.00	5	57
3	CAPISTRANO	CAPISTRANO BEACH SD	1	6	1	454,715	122,076.00	5	58
2	CARPINTERIA	CARPINTERIA SAN DIST	2	6	7	682,552	173,940.00	12	60
3	CHINO	CITY OF CHINO	3	7	1	500,579	150,000.00	3	60
3	CRESCENT CITY	CITY OF CRESCENT CITY	1	8	1	260,905	90,600.00	6	57
3	CROCKETT	CROCKETT VALONA SAN D	2	5	1	559,224	162,399.00	4	59
3	CUTLER	CUTLER PUB UTILITY DIS	1	6	1	84,340	25,300.00	5	60
3	DANA POINT	DANA POINT SAN DIST	1	5	1	336,725	101,017.39	3	58
3	DAVIS	CITY OF DAVIS	2	5	2	251,625	70,386.00	5	57
2	EL CAJON	CITY OF EL CAJON	5	2	1	1,085,857	250,000.00	11	60
2	EL GRANADA	GRANADA SANITARY DIST	4	5	1	392,880	117,860.00	3	60
3	ESCONDIDO	CITY OF ESCONDIDO	3	7	1	562,100	168,630.00	9	59
3	EUREKA	CITY OF EUREKA	4	3	1	44,860	13,458.10	4	57
3	FAIRFIELD	FAIRFIELD SUISUN DIST	2	1	1	495,953	148,785.86	3	57
2	FIELDS LANDING	SOUTH BAY CO SAN DIST	1	7	1	65,348	19,600.00	3	61
2	GOLETA	GOLETA SAN DIST	3	1	4	306,007	70,620.00	10	60
3	HALF MOON BAY	HALF MOON BAY SAN DIST	1	5	1	277,469	79,560.00	4	59
3	KINGS BEACH	N TAHOE PUB UTIL DIST	2	9	4	213,686	60,210.00	4	57
3	LAGUNA CO S D	LAGUNA COUNTY SAN DIST	2	5	1	792,214	237,660.00	11	59
3	LAKEPORT	CITY OF LAKEPORT	1	1	5	336,493	84,900.00	2	59
3	LATON	LATON COUNTY WATER DIST	1	7	1	109,951	32,980.00	2	60
1	LEUCADIA	LEUCADIA CO WATER DIST	2	7	1	588,100	129,750.00	3	61
2	LINDA	LINDA CO WATER DISTRICT	3	9	1	95,701	28,710.00	3	61
3	LIVERMORE	CITY OF LIVERMORE	2	7	1	900,093	250,000.00	8	58
3	LOLETA	LOLETA SAN DIST	2	6	1	53,401	16,020.25	4	58
3	LOMPOC	CITY OF LOMPOC	3	5	4	1,172,790	250,000.00	9	59

STATUS	LOCATION	NAME OF APPLICANT	POP CODE	DESCRIPTION	TYPE CONST	ESTIMATED ELIGIBLE COST OF PROJECT	FEDERAL GRANT OFFER	PROJECT APPROVED MONTH-YEAR
3	LOS ALTOS	CITY OF LOS ALTOS	3	5	1	858,284	212,810.55	5 57
2	LOS BANOS	CITY OF LOS BANOS	3	9	1	287,550	86,260.00	3 61
3	MANTECA	CITY OF MANTECA	2	2	1	346,602	103,980.00	4 59
3	MARTINEZ	CONTRA COSTA COUNTY S D	2	7	6	325,398	97,619.47	4 57
3	MARTINEZ	CITY OF MARTINEZ	3	1	1	297,569	89,270.83	4 58
1	MECCA	MECCA SANITARY DISTRICT	1	5	1	63,384	19,010.00	11 61
3	MILL VALLEY	CITY OF MILL VALLEY	3	1	2	543,842	163,152.83	11 57
3	MILLBRAE	CITY OF MILLBRAE	3	6	2	208,564	44,750.00	3 60
3	MODESTO	CITY OF MODESTO	4	1	7	470,431	120,000.00	4 60
3	NAPA	YOUNTVILLE SANITATION D	1	1	1	102,531	30,759.27	3 57
1	NEWCASTLE	NEWCASTLE SAN DIST	1	1	1	131,430	39,420.00	9 61
3	OROVILLE	N BURBANK PUB UTIL DIST	2	6	1	252,396	75,710.00	5 59
3	OROVILLE	CITY OF OROVILLE	3	7	1	884,855	250,000.00	4 59
2	PACIFICA	CITY OF PACIFICA	4	1	7	903,389	250,000.00	8 60
3	PATTERSON	CITY OF PATTERSON	1	7	4	330,606	99,180.00	3 60
3	PLACER	COUNTY OF PLACER	2	7	1	659,089	197,726.00	11 59
2	PLEASANTON	CITY OF PLEASANTON	1	1	2	231,500	69,450.00	1 60
3	RICHMOND	CITY OF RICHMOND	6	6	1	1,178,373	250,000.00	3 57
3	RICHMOND	CITY OF RICHMOND	6	1	1	847,317	250,000.00	11 60
3	RIO DELL	WILDWOOD SAN DIST	1	9	1	167,727	50,318.12	4 58
3	RODEO	RODEO SAN DIST	3	1	1	347,000	104,100.00	5 57
2	ROSEVILLE	CITY OF ROSEVILLE	4	1	4	615,638	184,690.00	3 61
2	SALINAS	CITY OF SALINAS	4	5	3	648,306	190,472.00	3 58
3	SAN BERNARDINO	CITY OF SAN BERNARDINO	6	5	1	1,489,430	250,000.00	4 58
3	SAN CLEMENTE	CITY OF SAN CLEMENTE	1	1	3	275,289	82,586.00	4 58
3	SAN DIEGO	SPRING VALLEY SAN DIST	3	1	1	292,744	87,048.00	5 57
3	SAN DIEGO	VISTA SANITATION DIST	3	1	2	139,871	39,690.00	4 57
2	SAN DIEGO	CITY OF SAN DIEGO CITY OF CHULA VISTA CITY OF CORONADO CITY OF EL CAJON CITY OF IMPERIAL BCH	9	5	5	49,044,992	250,000.00	12 61

		CITY OF LA MESA							
		CITY OF NATIONAL CITY							
		LEMON GROVE S D							
		ROLANDO S D							
		SPRING VALLEY S D							
3	SAN FRANCISCO	SAN FRANCISCO PORT AUTH	2	3	1	87,603	22,740.00	4	60
3	SAN FRANCISCO	CITY CO SAN FRANCISCO	4	1	4	167,505	33,000.00	5	60
3	SAN JOSE	CITY OF SAN JOSE	6	3	1	589,216	176,764.97	4	58
3	SAN JOSE	CITY OF SAN JOSE	8	1	2	689,521	206,850.00	3	61
3	SAN LEANDRO	CITY OF SAN LEANDRO	5	1	2	335,206	88,800.00	3	60
3	SANTA CRUZ	APTOS SANITATION DIST	2	5	1	530,941	159,280.00	3	60
3	SANTA CRUZ CO	FREEDOM SEW MAINT DIST	2	8	1	870,416	250,000.00	4	59
~~3~~	~~SANTA CRUZ~~	~~CITY OF SANTA CRUZ~~	~~4~~	~~4~~	~~3~~	~~228,069~~	~~66,795.00~~	~~5~~	~~57~~
2	SANTA MARIA	CITY OF SANTA MARIA	4	1	2	917,919	250,000.00	7	61
3	SOUTH TAHOE	SO TAHOE PUB UTIL DIST	2	1	1	1,740,216	250,000.00	4	59
3	STOCKTON	CITY OF STOCKTON	6	7	4	842,517	250,000.00	5	59
3	SUMMERLAND	SUMMERLAND SAN DIST	1	6	1	223,407	65,802.00	7	59
3	SUNNYVALE	CITY OF SUNNYVALE	3	1	2	203,983	48,081.00	4	57
3	SUNSET BEACH	SUNSET BEACH SAN DIST	2	1	2	12,071	3,480.00	6	60
2	TAHOE CITY	TAHOE CITY PUB UTIL DIS	1	1	2	48,967	14,690.00	11	61
2	TIBURON	MARIN CO SAN DIST 5	1	7	3	442,072	119,730.00	2	61
3	TRACY	CITY OF TRACY	2	1	2	263,346	78,750.00	4	57
3	UKIAH	UKIAH VALLEY SAN DIST	2	3	1	361,255	108,376.59	4	57
3	UKIAH	CITY OF UKIAH	3	1	1	933,728	250,000.00	4	57
3	VACAVILLE	CITY OF VACAVILLE	2	7	1	1,087,257	250,000.00	4	59
3	VALLEJO	VALLEJO SAN FLOOD C D	6	3	1	153,350	46,004.04	9	59
3	VALLEJO	VALLEJO SAN FLOOD C D	6	5	1	2,561,725	250,000.00	4	58
3	WATERFORD	WATERFORD COM SER DIST	1	7	1	78,932	23,679.71	5	57
3	WATSONVILLE	CITY OF WATSONVILLE	4	1	1	963,931	250,000.00	4	59
3	WEAVERVILLE	WEAVERVILLE SAN DIST	1	6	1	154,710	45,000.00	5	57
2	WEED	SHASTINA SANITARY DIST	1	9	1	126,400	37,920.00	7	61
3	WILLITS	CITY OF WILLITS	2	1	7	147,519	44,255.74	11	57
3	WINTERS	CITY OF WINTERS	1	1	1	178,948	48,000.00	11	59
3	YUBA CITY	CITY OF YUBA CITY	3	1	2	30,548	8,660.00	3	60

STATUS	LOCATION	NAME OF APPLICANT	POP CODE	DESCRIP TION	TYPE CONST	ESTIMATED ELIGIBLE COST OF PROJECT	FEDERAL GRANT OFFER	PROJECT APPROVED MONTH-YEAR	
	COLORADO								
3	AKRON	TOWN OF AKRON	1	9	1	35,142	10,542.73	9	60
3	ALTURA	ALTURA SANITATION DIST	2	9	4	22,952	6,885.61	9	57
3	ARVADA	CLEAR CREEK VALLEY WSD	3	1	7	130,255	39,076.36	10	58
3	ASPEN	ASPEN SANITARY DIST	1	1	1	171,547	45,332.00	4	57
3	BERTHOUD	TOWN OF BERTHOUD	1	1	2	29,554	8,866.24	1	60
3	BOULDER	CITY OF BOULDER	4	1	1	969,429	250,000.00	1	57
3	BRIGHTON	CITY OF BRIGHTON	2	1	3	257,612	77,283.63	7	57
3	BRUSH	CITY OF BRUSH	1	1	1	175,030	52,508.96	9	57
3	BYERS	BYERS WATER SAN DIST	1	9	1	18,961	5,688.55	10	57
2	CASTLE ROCK	TOWN OF CASTLE ROCK	1	9	2	50,700	15,210.00	8	61
3	COLORADO SPR	CITY OF COLORADO SPR	5	1	7	1,042,914	250,000.00	7	58
2	COLORADO SPR	CITY OF COLORADO SPR	5	1	2	348,578	90,881.80	1	61
2	COLORADO SPR	NORTH SUBURBAN SAN DIST	1	1	2	20,500	6,150.00	7	61
3	CRAIG SAN DIST	W CRAIG W AND S DIST	2	4	1	22,580	6,774.34	11	57
3	CRAIG	CITY OF CRAIG	2	9	1	56,071	16,821.37	10	57
3	DEL NORTE	TOWN OF DEL NORTE	1	9	1	40,092	12,027.57	4	57
1	DENVER	BAKER METRO W AND S D	4	1	2	146,830	44,049.00	7	61
3	DERBY	S ADAMS W AND S DIST	4	1	1	310,798	93,239.45	5	57
2	DILLON	DILLON IMPROVEMENT CORP	1	9	1	63,335	19,000.00	7	61
3	DOVE CREEK	DOVE CREEK SAN DIST	1	9	1	59,826	17,947.75	10	57
3	DURANGO	CITY OF DURANGO	3	5	4	589,983	176,994.82	7	58
1	ENGLEWOOD	S W MET WATER SAN DIST	1	3	1	769,055	230,716.46	10	61
3	ENGLEWOOD	S ARAPAHOE SAN DIST	4	3	1	531,000	159,300.00	9	60
3	ENGLEWOOD	CITY OF ENGLEWOOD	4	1	2	577,605	173,281.48	10	59
2	EVANS	EVANS SANITATION DIST	1	9	1	48,547	14,564.02	8	61
3	EVERGREEN	EVERGREEN SAN DISTRICT	1	5	1	167,056	50,116.78	4	59
1	EVERGREEN	EVERGREEN SAN DIST	1	3	2	23,507	7,052.01	7	61
3	FLORENCE	FLORENCE SANITATION DST	2	5	1	265,413	79,623.90	9	60
3	FORT COLLINS	CITY OF FORT COLLINS	4	1	2	194,863	58,458.79	7	58

2	GLENDALE	GLENDALE WATER SAN DIST	1	1	2	80,000	24,000.00	9	61
3	GRAND JUNCTION	CITY OF GRAND JUNCTION	4	6	7	689,316	206,794.89	5	57
3	GUNNISON	CITY OF GUNNISON	2	7	1	370,133	111,039.75	8	59
3	HOLLY	TOWN OF HOLLY	1	9	1	67,946	20,383.66	7	60
3	JULESBURG	TOWN OF JULESBURG	1	1	1	126,493	37,948.17	8	57
1	KIT CARSON	KIT CARSON SAN DIST	1	9	1	24,350	7,305.00	11	61
3	LA JUNTA	CITY OF LA JUNTA	3	1	1	368,957	110,687.15	8	59
3	LAMAR	CITY OF LAMAR	3	9	1	165,994	49,798.26	12	57
3	LAS ANIMAS	CITY OF LAS ANIMAS	2	9	1	74,153	22,246.09	8	57
3	LITTLETON	CITY OF LITTLETON	2	1	1	208,168	62,450.25	9	59
3	LONGMONT	CITY OF LONGMONT	3	7	1	537,240	161,172.00	9	59
2	LOVELAND	CITY OF LOVELAND	3	3	2	305,660	91,698.00	11	61
2	LOVELAND	CITY OF LOVELAND	3	1	1	653,710	196,113.00	7	61
1	MERINO	TOWN OF MERINO	1	9	1	16,535	4,960.50	11	61
3	MONTE VISTA	CITY OF MONTE VISTA	2	9	1	114,173	34,251.86	7	58
3	MONTROSE	CITY OF MONTROSE	2	1	2	385,000	115,500.00	9	60
3	NATURITA	NATURITA SANITATION DIS	1	1	1	47,613	14,284.12	9	57
3	NUCLA	NUCLA SANITATION DIST	1	9	1	13,389	4,016.72	2	60
3	PAGOSA SPRING	PAGOSA SPRINGS SAN DIST	1	5	1	112,092	33,627.54	7	58
3	PUEBLO	CITY OF PUEBLO	6	1	2	903,607	250,000.00	10	57
3	ROCKY FORD	CITY OF ROCKY FORD	2	9	1	95,588	28,676.31	9	60
3	SALIDA	CITY OF SALIDA	2	6	1	186,319	55,896.00	10	57
2	SOUTHGATE	SOUTHGATE SAN DIST	5	3	1	347,066	104,119.90	9	61
1	SPRINGFIELD	TOWN OF SPRINGFIELD	1	9	1	75,257	22,577.10	7	61
2	STERLING	CITY OF STERLING	3	5	1	462,770	138,831.00	7	60
3	WOODLAND PARK	WOODLAND PARK SAN DIST	1	9	1	55,030	16,508.97	10	59
3	WRAY	CITY OF WRAY	1	9	1	74,269	22,280.81	7	58
	CONNECTICUT								
2	BRANFORD	BRANFORD SEW AUTH	4	1	1	1,373,145	250,000.00	9	61
2	EAST HAVEN	TOWN OF EAST HAVEN	4	3	1	998,586	250,000.00	8	60
2	FARMINGTON	TOWN OF FARMINGTON	3	7	1	1,230,000	250,000.00	4	60
2	GLASTONBURY	TOWN OF GLASTONBURY	3	5	1	519,882	155,964.70	12	59

STATUS	LOCATION	NAME OF APPLICANT	POP CODE	DESCRIP TION	TYPE CONST	ESTIMATED ELIGIBLE COST OF PROJECT	FEDERAL GRANT OFFER	PROJECT APPROVED MONTH-YEAR
1	NEW CANAAN	TOWN OF NEW CANAAN	4	1	2	600,000	180,000.00	4 61
3	NEW HAVEN	CITY OF NEW HAVEN	7	1	7	218,313	65,493.93	5 57
3	NEW MILFORD	TOWN OF NEW MILFORD	2	5	1	482,500	144,750.00	2 58
3	NORWICH	CITY OF NORWICH	4	7	4	1,517,696	250,000.00	2 57
2	PLYMOUTH	TOWN OF PLYMOUTH S A	3	5	1	709,275	212,782.50	11 59
2	ROCKVILLE	CITY OF ROCKVILLE	3	1	1	790,000	237,000.00	8 58
3	SOUTHINGTON	TOWN OF SOUTHINGTON	3	1	1	1,031,080	250,000.00	8 57
2	TARIFFVILLE	TARIFFVILLE FIRE DIST	1	1	7	77,100	23,130.00	8 60
2	THOMASTON	THOMASTON SEWER COMM	3	5	1	753,669	226,100.66	5 61
3	WALLINGFORD	TOWN OF WALLINGFORD S A	4	5	1	1,775,318	250,000.00	9 58
3	WESTPORT	TOWN OF WESTPORT	/4	5	1	1,059,000	250,000.00	4 59
3	WILLIMANTIC	CITY OF WILLIMANTIC	4	7	1	690,134	207,040.45	3 57
3	WINDSOR LOCKS	TOWN OF WINDSOR LOCKS	3	5	1	549,309	152,400.00	1 58
	DELAWARE							
3	DELAWARE CITY	NEW CASTLE COUNTY	1	5	1	195,000	58,500.00	3 59
1	DOVER	CITY OF DOVER	3	1	2	396,500	118,950.00	7 61
3	GEORGETOWN	TOWN COUNCIL GEORGETOWN	1	1	2	90,040	27,012.00	7 57
1	LAUREL	TOWN OF LAUREL	2	5	1	623,390	187,017.00	1 58
2	LEWES	BOARD OF PUBLIC WORKS	2	5	1	681,700	204,510.00	12 57
3	MILFORD	CITY OF MILFORD	3	3	1	49,870	14,960.91	4 58
2	MILTON	TOWN OF MILTON	1	7	1	287,849	86,354.67	2 58
3	NEW CASTLE CO	NEW CASTLE COUNTY	1	3	1	340,990	102,296.86	5 59
2	NEW CASTLE CO	NEW CASTLE COUNTY	3	3	1	932,000	250,000.00	3 60
3	NEW CASTLE CO	NEW CASTLE COUNTY	6	3	1	133,908	40,172.44	10 58
1	NEW CASTLE CO	NEW CASTLE COUNTY	6	3	1	265,000	79,500.00	7 61
2	REHOBOTH BCH	CITY OF REHOBOTH BEACH	1	1	7	382,000	114,600.00	1 59
3	SEAFORD	CITY OF SEAFORD	2	6	1	615,154	184,546.34	5 57
2	WILMINGTON	CITY OF WILMINGTON	6	3	1	87,846	26,353.81	3 60

1	WILMINGTON	CITY OF WILMINGTON	6	1	7	838,000	250,000.00	1	61
	DIST OF COL								
3	ANACOSTIA	DEPT SANITARY ENGR	9	3	2	826,823	248,047.16	12	59
1	BLUE PLAINS	DEPT SANITARY ENGR	9	1	2	2,017,400	600,000.00	11	61
3	BLUE PLAINS	DEPT SANITARY ENGR	9	1	2	6,080,778	250,000.00	6	57
3	BLUE PLAINS	DEPT SANITARY ENGR	9	1	2	1,107,616	250,000.00	4	58
3	BLUE PLAINS	DEPT SANITARY ENGR	9	1	2	2,229,415	250,000.00	4	58
3	DIST COLUMBIA	DEPT SANITARY ENGR	9	4	3	304,597	91,378.97	8	57
2	DIST COLUMBIA	DEPT SANITARY ENGR	9	3	1	2,292,465	250,000.00	2	60
2	DIST COLUMBIA	DEPT SANITARY ENGR	9	4	1	2,592,058	250,000.00	5	61
3	GLENN DALE SAN	DEPT SANITARY ENGR	1	2	1	86,119	25,146.00	11	58
2	LORTON	DEPT SANITARY ENGR	3	7	1	654,248	196,274.00	10	58
	FLORIDA								
3	APALACHICOLA	CITY OF APALACHICOLA	2	7	1	233,590	70,077.00	5	57
3	ARCADIA	CITY OF ARCADIA	1	1	1	175,817	52,745.25	11	58
3	ATLANTIC BEACH	TOWN OF ATLANTIC BEACH	1	5	1	223,644	67,093.29	7	58
2	AUBURNDALE	CITY OF AUBURNDALE	3	7	5	240,817	72,245.00	6	61
2	BELLEAIR	TOWN OF BELLEAIR	1	5	1	450,000	114,000.00	5	61
3	BELLE GLADE	CITY OF BELLE GLADE	3	6	1	432,185	129,655.60	4	57
3	BOCA RATON	CITY OF BOCA RATON	1	7	4	242,823	72,847.02	12	58
2	BONIFAY	CITY OF BONIFAY	1	7	1	200,000	60,000.00	3	61
3	BROOKSVILLE	CITY OF BROOKSVILLE	1	7	6	168,227	50,468.18	11	58
3	CALLAHAN	CITY OF CALLAHAN	1	1	1	129,300	38,790.00	5	57
3	COCOA	CITY OF COCOA	2	1	4	453,584	136,075.22	5	60
3	COCOA BEACH	TOWN OF COCOA BEACH	1	1	1	325,000	97,500.00	10	57
2	DEERFIELD BCH	CITY OF DEERFIELD BEACH	3	7	1	347,292	104,187.00	10	61
3	EAU GALLIE	CITY OF EAU GALLIE	1	7	1	351,665	105,499.50	12	57
3	FORT PIERCE	CITY OF FORT PIERCE	4	7	1	423,296	126,988.93	3	59
3	FT LAUDERDALE	CITY OF FORT LAUDERDALE	5	6	1	930,687	250,000.00	12	57

STATUS	LOCATION	NAME OF APPLICANT	POP CODE	DESCRIPTION	TYPE CONST	ESTIMATED ELIGIBLE COST OF PROJECT	FEDERAL GRANT OFFER	PROJECT APPROVED MONTH-YEAR
3	GAINESVILLE	CITY OF GAINESVILLE	5	3	1	317,184	95,155.14	12 60
2	HAINES CITY	CITY OF HAINES CITY	3	7	4	295,000	88,500.00	6 61
3	JACKSONVILLE	CITY OF JACKSONVILLE	7	1	1	1,559,866	175,000.00	5 60
3	LAKELAND	CITY OF LAKELAND	5	5	1	529,091	158,727.47	12 58
3	LIVE OAK	CITY OF LIVE OAK	2	1	1	348,885	104,665.55	10 58
3	LONG KEY	LONG KEY SEWER DIST	3	5	1	586,876	176,062.88	11 57
2	LYNN HAVEN	CITY OF LYNN HAVEN	1	5	1	401,000	120,300.00	1 61
3	MACCLENNY	CITY OF MACCLENNY	1	1	2	96,113	28,833.86	5 60
3	MADEIRA BEACH	CITY OF MADEIRA BEACH	4	1	2	334,485	100,104.72	5 59
3	MILTON	TOWN OF MILTON	1	1	1	157,064	47,119.20	1 58
3	MONTICELLO	CITY OF MONTICELLO	1	4	1	260,348	78,104.45	12 59
3	NAPLES	CITY OF NAPLES	1	6	1	249,444	74,833.00	4 57
3	OKEECHOBEE	CITY OF OKEECHOBEE	1	7	1	237,200	71,160.00	5 57
2	ORLANDO	CITY OF ORLANDO	6	1	1	1,100,000	250,000.00	3 61
3	PALATKA	CITY OF PALATKA	3	7	1	281,413	84,423.85	4 59
2	PENSACOLA	CITY OF PENSACOLA	5	7	1	434,139	130,241.63	2 61
3	PERRY	CITY OF PERRY	2	7	1	464,549	139,364.77	12 57
3	PINELLAS PARK	TOWN OF PINELLAS PARK	2	7	1	403,488	121,044.73	11 59
2	PINELLAS CO	BD OF CO COM S CROSS BD	5	7	1	890,000	250,000.00	10 61
2	PLANT CITY	CITY OF PLANT CITY	3	1	7	106,836	32,050.80	11 60
2	RIVIERA BEACH	CITY OF RIVIERA BEACH	2	5	1	822,001	246,600.00	1 61
3	SOUTH SHORE	TOWN INDIAN ROCKS BEACH	1	1	1	283,535	85,060.42	11 58
3	SOUTH DAYTONA	CITY OF SOUTH DAYTONA	1	3	1	140,836	42,250.69	9 60
3	TITUSVILLE	CITY OF TITUSVILLE	2	5	1	401,255	120,376.54	10 59
3	VERO BEACH	CITY OF VERO BEACH	2	7	1	644,121	193,236.47	1 59
3	WAUCHULA	CITY OF WAUCHULA	2	5	1	456,761	137,028.42	4 57
3	WILDWOOD	CITY OF WILDWOOD	1	1	6	90,000	27,000.00	4 57
2	WINTER GARDEN	CITY OF WINTER GARDEN	2	7	6	175,351	52,605.17	1 61

GEORGIA

3	ALBANY	CITY OF ALBANY	5	3	1	308,393	92,517.84	10	60
3	ALBANY	CITY OF ALBANY	5	1	1	1,310,000	250,000.00	8	57
2	ATHENS	CITY OF ATHENS	5	1	1	2,415,000	250,000.00	5	58
2	ATLANTA	CITY OF ATLANTA	8	1	2	1,494,000	250,000.00	5	61
3	BARNESVILLE	CITY OF BARNESVILLE	2	5	1	291,792	87,537.68	4	57
3	BAXLEY	CITY OF BAXLEY	2	6	1	357,765	107,329.46	2	57
3	BLACKSHEAR	CITY OF BLACKSHEAR	1	6	1	112,341	33,702.24	6	57
3	BLAKELY	CITY OF BLAKELY	2	1	2	120,000	36,000.00	3	57
2	BLUE RIDGE	CITY OF BLUE RIDGE	1	5	1	46,000	13,800.00	2	61
3	BUENA VISTA	CITY OF BUENA VISTA	1	7	1	130,579	39,173.83	3	57
1	CEDARTOWN	CITY OF CEDARTOWN	3	7	4	334,000	100,200.00	12	58
2	CLAYTON CO	CLAYTON COUNTY	3	9	1	180,000	60,000.00	8	59
1	COCHRAN	CITY OF COCHRAN	2	9	1	260,000	78,000.00	8	61
3	COLLEGE PARK	CITY OF COLLEGE PARK	4	1	1	539,574	161,872.30	3	58
2	COLUMBUS	CITY OF COLUMBUS	6	5	1	2,467,000	250,000.00	1	61
1	CORNELIA	CITY OF CORNELIA	2	9	1	294,000	88,000.00	7	61
1	DALTON	CITY OF DALTON	4	1	1	2,500,000	250,000.00	11	60
3	DE KALB CO	DE KALB COUNTY	4	7	1	1,048,625	250,000.00	8	58
2	DOUGLAS	CITY OF DOUGLAS	3	5	4	385,000	115,500.00	11	59
1	FULTON COUNTY	FULTON COUNTY	8	7	1	1,159,000	250,000.00	3	58
1	GAINESVILLE	CITY OF GAINESVILLE	4	3	2	186,000	55,800.00	8	61
3	GAINESVILLE	CITY OF GAINESVILLE	4	7	1	730,714	219,214.14	9	58
1	GORDON	CITY OF GORDON	1	5	1	100,000	30,000.00	8	61
1	GRACEWOOD	GEORGIA TRAINING SCHOOL	1	6	1	400,000	120,000.00	8	60
1	GRIFFIN	CITY OF GRIFFIN	4	7	1	641,000	192,300.00	11	60
2	HAHIRA	CITY OF HAHIRA	1	9	1	133,786	40,135.93	11	60
3	HAMPTON	CITY OF HAMPTON	1	7	1	234,416	70,324.67	4	59
2	HARLEM	CITY OF HARLEM	1	1	5	90,000	27,000.00	9	60
2	JEKYLL ISLAND	JEKYLL ISLAND AUTHORITY	1	1	1	834,000	250,000.00	7	61
3	JONESBORO	CLAYTON COUNTY	4	5	1	1,094,000	250,000.00	4	57
3	KENNESAW	CITY OF KENNESAW	1	5	1	522,049	156,614.70	12	59
1	LAGRANGE	CITY OF LAGRANGE	5	5	1	682,000	204,600.00	10	59
3	LAWRENCEVILLE	CITY OF LAWRENCEVILLE	2	6	1	235,094	70,528.46	2	57
1	MACON	CITY OF MACON	6	1	6	2,100,000	250,000.00	1	61

STATUS	LOCATION	NAME OF APPLICANT	POP CODE	DESCRIP TION	TYPE CONST	ESTIMATED ELIGIBLE COST OF PROJECT	FEDERAL GRANT OFFER	PROJECT APPROVED MONTH-YEAR
2	MANCHESTER	CITY OF MANCHESTER	2	1	1	356,000	106,800.00	12 58
3	MARIETTA	CITY OF MARIETTA	4	1	3	634,554	190,366.26	10 58
2	MONTEZUMA	CITY OF MONTEZUMA	2	7	1	421,000	126,300.00	10 60
2	MOULTRIE	CITY OF MOULTRIE	4	5	5	878,550	250,000.00	10 59
2	NEWNAN	WATER SEW AND LIGHT COM	3	7	1	413,064	103,570.00	11 60
1	NORCROSS	CITY OF NORCROSS	1	9	1	44,200	13,260.00	7 61
3	SMYRNA	CITY OF SMYRNA	1	8	1	215,044	64,513.08	6 57
3	STATESBORO	CITY OF STATESBORO	3	5	1	688,600	195,760.00	1 58
1	STONE MOUNTAIN	DEKALB COUNTY	1	1	1	144,100	43,200.00	7 61
1	STONE MOUNTAIN	STONE MOUNTAIN MEM ASSN	1	3	1	33,400	10,000.00	10 61
2	THOMASVILLE	CITY OF THOMASVILLE	4	7	4	667,000	200,100.00	12 60
1	TOCCOA	CITY OF TOCCOA	3	6	1	34,951	10,245.00	8 60
3	VIDALIA	CITY OF VIDALIA	3	6	1	221,723	66,516.89	2 58
3	WASHINGTON	CITY OF WASHINGTON	2	7	1	267,100	72,840.80	3 57
3	WAYCROSS	CITY OF WAYCROSS	4	1	1	1,200,000	250,000.00	6 57
	HAWAII							
1	HALAWA	CITY COUNTY HONOLULU	4	3	2	118,500	35,550.00	12 62
1	HILO	COUNTY OF HAWAII	1	7	1	673,287	201,980.00	12 61
2	HONOLULU	CITY COUNTY HONOLULU	3	3	1	137,110	40,920.00	9 60
3	HONOLULU	CITY COUNTY HONOLULU	4	3	1	38,195	11,458.00	1 59
2	HONOLULU	CITY COUNTY HONOLULU	8	7	1	965,395	250,000.00	12 57
3	HONOLULU	CITY COUNTY HONOLULU	8	3	1	136,850	41,055.06	2 57
1	KAILUA	CITY COUNTY HONOLULU	3	1	2	735,000	220,500.00	12 61
2	KAILUA	CITY COUNTY HONOLULU	3	7	1	2,113,487	250,000.00	5 59
2	KAILUA	CITY COUNTY HONOLULU	3	3	1	540,000	162,000.00	1 60
2	KANEOHE	CITY COUNTY HONOLULU	2	3	1	738,000	221,400.00	1 60
2	KANEOHE	CITY COUNTY HONOLULU	3	1	2	657,207	197,160.00	5 59
1	KANEOHE BAY	CITY COUNTY HONOLULU	3	3	1	666,500	199,950.00	5 61
2	KANEOHE BAY	CITY COUNTY HONOLULU	4	2	1	670,000	201,000.00	5 61
1	PEARL CITY	CITY COUNTY HONOLULU	4	5	1	1,816,295	250,000.00	7 59

3	WAHIAWA	CITY COUNTY HONOLULU	3	3	1	135,036	40,510.00	3	59
	IDAHO								
2	ALAMEDA	CITY OF ALAMEDA	4	3	1	6,740	2,022.00	6	61
1	ALAMEDA	CITY OF ALAMEDA	4	3	2	164,920	49,476.00	10	61
2	BLACKFOOT	CITY OF BLACKFOOT	3	7	1	337,080	101,124.00	2	61
3	BOISE	BENCH SEWER DIST	4	3	1	847,162	250,000.00	5	58
3	BOISE	CITY OF BOISE	5	1	7	255,639	76,691.78	5	58
3	BOISE	CITY OF BOISE	5	2	1	32,805	9,841.64	12	59
1	BURLEY	CITY OF BURLEY	3	9	1	769,000	230,700.00	4	61
3	COTTONWOOD	VILLAGE OF COTTONWOOD	1	9	1	41,172	12,351.56	3	57
3	DEARY	VILLAGE OF DEARY	1	9	1	33,776	10,132.92	9	60
3	GENESEE	CITY OF GENESEE	1	9	1	41,460	12,438.00	10	58
3	GRACE	VILLAGE OF GRACE	1	5	1	126,589	37,976.73	2	59
3	HEYBURN	VILLAGE OF HEYBURN	1	5	1	122,082	36,624.50	1	60
3	IDAHO FALLS	CITY OF IDAHO FALLS	4	5	1	1,518,830	250,000.00	9	57
3	KAMIAH	CITY OF KAMIAH	1	9	1	103,540	31,000.00	8	59
2	KOOSKIA	VILLAGE OF KOOSKIA	1	5	1	67,000	20,100.00	1	58
1	LEWISTON	LEWISTON ORCHARDS S D 1	3	8	1	286,682	86,004.00	10	61
3	LEWISTON	CITY OF LEWISTON	4	7	1	812,123	243,636.86	3	57
3	MACKAY	VILLAGE OF MACKAY	1	9	1	61,622	18,486.58	7	60
2	MALAD	CITY OF MALAD	2	9	1	68,000	20,400.00	1	60
3	MONTPELIER	CITY OF MONTPELIER	2	7	1	198,790	59,636.92	4	60
3	MOSCOW	CITY OF MOSCOW	4	7	2	382,524	114,757.31	3	57
2	MOSCOW	CITY OF MOSCOW	4	1	2	44,850	13,455.00	1	61
2	MOUNTAIN HOME	CITY OF MOUNTAIN HOME	1	9	1	321,000	96,300.00	1	61
2	OROFINO	CITY OF OROFINO	1	5	1	225,134	67,540.00	11	60
3	PAYETTE	CITY OF PAYETTE	2	5	1	305,240	91,572.10	2	58
3	POCATELLO	CITY OF POCATELLO	5	5	1	1,176,000	250,000.00	10	57
3	POTLATCH	VILLAGE OF POTLATCH	1	9	1	36,454	10,936.17	7	60
3	PRIEST RIVER	CITY OF PRIEST RIVER	1	5	1	92,631	27,789.44	5	57

STATUS	LOCATION	NAME OF APPLICANT	POP CODE	DESCRIP TION	TYPE CONST	ESTIMATED ELIGIBLE COST OF PROJECT	FEDERAL GRANT OFFER	PROJECT APPROVED MONTH-YEAR
3	RUPERT	CITY OF RUPERT	2	5	1	374,835	112,450.62	7 60
3	SANDPOINT	CITY OF SANDPOINT	2	6	1	228,465	68,539.52	7 57
2	SODA SPRINGS	CITY OF SODA SPRINGS	1	7	1	161,238	48,371.30	7 60
2	TWIN FALLS	CITY OF TWIN FALLS	4	7	1	1,500,000	250,000.00	1 60
3	WEISER	CITY OF WEISER	2	5	1	304,286	91,285.86	10 58
3	WENDELL	CITY OF WENDELL	1	9	1	110,839	33,251.61	8 59
	ILLINOIS							
2	ALBANY	ALBANY SANITARY DIST	1	5	1	78,250	23,250.00	5 61
1	ALEDO	CITY OF ALEDO	2	1	1	356,200	106,860.00	9 61
2	ALGONQUIN	VILLAGE OF ALGONQUIN	1	1	7	232,029	69,608.70	10 60
2	ALHAMBRA	ALHAMBRA SAN DIST	1	9	1	50,682	15,204.52	1 59
1	ALTON	CITY OF ALTON	5	7	1	848,735	250,000.00	8 61
1	ANTIOCH	VILLAGE OF ANTIOCH	1	1	1	216,720	65,016.00	12 61
2	ASHTON	VILLAGE OF ASHTON	1	1	4	125,000	37,500.00	10 60
2	AURORA	AURORA SANITARY DIST	6	1	2	735,000	170,000.00	1 61
3	AVISTON	VILLAGE OF AVISTON	1	7	1	99,050	29,400.00	3 59
3	BATAVIA	CITY OF BATAVIA	3	7	4	548,415	164,524.35	12 58
1	BEARDSTOWN	BEARDSTOWN SAN DIST	3	7	5	385,500	115,650.00	11 61
1	BEECHER	VILLAGE OF BEECHER	1	1	1	186,200	55,860.00	12 61
1	BELLEVILLE	CITY OF BELLEVILLE	5	3	1	149,100	44,730.00	2 61
3	BENLD	CITY OF BENLD	1	1	1	123,799	37,139.55	12 57
2	BENSENVILLE	VILLAGE OF BENSENVILLE	2	7	2	228,723	68,616.90	1 61
1	BENTON	CITY OF BENTON	3	1	2	325,400	97,620.00	10 61
3	BOURBANNAIS	VILLAGE OF BOURBANNAIS	1	7	1	218,844	65,653.15	4 57
2	BREESE	CITY OF BREESE	1	7	4	171,314	33,314.40	10 59
2	BRIDGEPORT	CITY OF BRIDGEPORT	1	9	1	77,498	23,249.00	7 61
3	CANTON	CITY OF CANTON	4	1	2	160,000	48,000.00	10 59
1	CARROLLTON	CITY OF CARROLLTON	2	1	1	139,918	41,975.41	12 61

1	CEDAR POINT	VILLAGE OF CEDAR POINT	1	9	1	24,500	7,350.00	10	60
1	CENTRALIA	CITY OF CENTRALIA	4	1	7	430,825	129,247.50	10	61
2	CHADWICK	VILLAGE OF CHADWICK	1	9	1	90,000	27,000.00	10	60
3	CHARLESTON	CITY OF CHARLESTON	3	7	4	419,840	124,500.00	3	57
1	CHESTER	CITY OF CHESTER	2	7	5	649,580	194,800.00	10	61
3	CHRISMAN	CITY OF CHRISMAN	1	7	1	176,084	45,090.00	11	59
2	CLINTON	CLINTON SANITARY DIST	3	1	4	375,000	112,500.00	8	60
3	COLUMBIA	CITY OF COLUMBIA	1	9	1	133,926	27,750.00	11	59
2	COULTERVILLE	VILLAGE OF COULTERVILLE	1	9	1	52,560	15,768.00	6	59
3	DANVILLE	DANVILLE SAN DIST	5	7	4	1,317,840	250,000.00	5	57
2	DEERFIELD	VILLAGE OF DEERFIELD	2	1	7	325,808	97,742.44	9	60
1	DIXON	CITY OF DIXON	4	7	2	1,005,000	250,000.00	8	61
3	DUPO	VILLAGE OF DUPO	1	7	1	126,047	29,700.00	10	59
3	DURAND	SANITARY DIST OF DURAND	1	9	1	70,603	21,000.00	6	59
2	EAST PEORIA	CITY OF EAST PEORIA	3	1	2	170,000	42,000.00	8	61
3	EAST MOLINE	CITY OF EAST MOLINE	4	7	1	1,085,528	250,000.00	6	58
3	EFFINGHAM	CITY OF EFFINGHAM	3	5	4	445,364	133,609.29	3	57
1	ELGIN	SANITARY DIST OF ELGIN	5	1	2	1,028,760	250,000.00	11	61
3	FAIRBURY	CITY OF FAIRBURY	1		1	287,388	86,216.47	4	58
3	FARMER CITY	FARMER CITY	1	7	5	165,838	49,751.23	3	57
3	FLORA	CITY OF FLORA	3	1	2	192,616	57,784.65	10	58
2	FOX LAKE	VILLAGE OF FOX LAKE	1	7	1	756,682	227,004.69	10	58
3	FRANKLIN GROVE	FRANKLIN GROVE SAN DIST	1	7	1	144,575	43,372.79	5	59
3	FRANKFORT	VILLAGE OF FRANKFORT	1	5	1	186,057	55,817.10	2	60
1	FULTON	CITY OF FULTON	2	5	1	311,000	93,300.00	8	61
1	GARDNER	VILLAGE OF GARDNER	1	1	1	166,464	49,939.20	12	61
3	GENESEO	CITY OF GENESEO	2	1	1	262,091	78,627.34	3	58
2	GENOA	CITY OF GENOA	1	9	5	130,271	39,081.31	10	61
1	GEORGETOWN	CITY OF GEORGETOWN	2	1	1	260,189	75,249.00	8	60
2	GLASFORD	VILLAGE OF GLASFORD	1	6	1	92,200	27,660.00	11	60
3	GOLCONDA	GOLCONDA SAN DIST	1	5	1	62,330	18,000.00	9	60
1	GRANVILLE	VILLAGE OF GRANVILLE	1	9	1	180,960	54,200.00	11	60
3	HANNA CITY	HANNA CITY SAN DIST	1	9	1	7,283	2,185.11	9	60
3	HARVARD	CITY OF HARVARD	2	1	7	162,441	48,732.14	7	58

STATUS	LOCATION	NAME OF APPLICANT	POP CODE	DESCRIP TION	TYPE CONST	ESTIMATED ELIGIBLE COST OF PROJECT	FEDERAL GRANT OFFER	PROJECT APPROVED MONTH-YEAR	
2	HERRIN	CITY OF HERRIN	3	1	4	117,844	35,353.04	10	60
1	HIGHLAND	CITY OF HIGHLAND	2	7	2	391,230	117,360.00	11	61
1	HOOPESTON	CITY OF HOOPESTON	3	1	2	420,000	126,000.00	9	61
2	HUNTLEY	VILLAGE OF HUNTLEY	1	1	2	69,590	20,876.94	11	60
2	KANKAKEE	CITY OF KANKAKEE	5	1	2	997,000	250,000.00	10	59
3	KEWANEE	CITY OF KEWANEE	4	1	7	246,313	73,893.88	9	57
3	LA SALLE	CITY OF LA SALLE	4	7	1	721,003	216,300.98	9	58
3	LAKE VILLA	VILLAGE OF LAKE VILLA	1	1	1	145,921	43,776.42	4	57
3	LANSING	VILLAGE OF LANSING	3	1	4	682,760	204,827.85	4	57
1	LAWRENCEVILLE	CITY OF LAWRENCEVILLE	1	5	1	509,126	152,737.91	8	60
1	LEWISTOWN	CITY OF LEWISTOWN	2	1	2	38,310	11,493.00	9	60
3	LITCHFIELD	CITY OF LITCHFIELD	3	1	4	211,836	63,551.00	7	59
3	LOCKPORT	CITY OF LOCKPORT	2	7	1	420,064	126,019.30	4	58
1	LOUISVILLE	VILLAGE OF LOUISVILLE	1	9	1	48,650	14,595.00	11	60
3	MANTENO	VILLAGE OF MANTENO	1	5	1	235,980	70,793.94	4	57
1	MARSEILLES	CITY OF MARSEILLES	2	1	2	163,590	49,077.00	11	61
3	MASCOUTAH	CITY OF MASCOUTAH	2	9	1	400,334	95,000.00	12	58
3	METROPOLIS	CITY OF METROPOLIS	3	7	1	791,712	237,513.69	1	59
3	MILLEDGEVILLE	VILL OF MILLEDGEVILLE	1	7	1	386,661	114,000.00	10	59
1	MILLSTADT	VILLAGE OF MILLSTADT	1	9	5	72,400	21,700.00	10	61
3	MOKENA	VILLAGE OF MOKENA	1	6	1	215,349	64,604.53	4	57
3	MOLINE	CITY OF MOLINE	5	7	5	967,000	250,000.00	12	59
2	MOMENCE	CITY OF MOMENCE	2	1	4	234,200	70,260.00	11	60
3	MONMOUTH	CITY OF MONMOUTH	4	1	7	246,434	73,930.12	7	58
2	MOUNDS	CITY OF MOUNDS	1	9	1	61,214	16,000.00	10	60
3	MOUNT OLIVE	CITY OF MOUNT OLIVE	1	1	4	209,614	60,500.00	12	58
3	MOUNT STERLING	CITY OF MT STERLING	1	5	4	170,521	51,156.30	2	58
2	MOUNT CARROLL	CITY OF MOUNT CARROLL	1	7	1	318,252	87,101.40	11	59
3	MOUNT MORRIS	VILLAGE OF MOUNT MORRIS	2	1	7	42,700	12,809.97	9	58
3	MURPHYSBORO	CITY OF MURPHYSBORO	3	7	1	614,300	184,290.05	3	58
1	NELSON	VILLAGE OF NELSON	1	7	1	43,000	12,900.00	2	61

3	NEW LENOX	VILLAGE OF NEW LENOX	1	5	1	225,936	67,780.66	11	59
3	NOBLE	NOBLE SANITARY DISTRICT	1	9	1	36,334	10,900.10	6	59
3	OFALLON	CITY OF OFALLON	2	1	6	132,147	37,500.00	3	57
3	ORION	VILLAGE OF ORION	1	7	1	105,542	31,604.10	5	58
3	OTTAWA	CITY OF OTTAWA	4	5	1	899,702	250,000.00	3	57
3	PALESTINE	VILLAGE OF PALESTINE	1	9	1	43,232	10,353.30	11	59
3	PAW PAW	PAW PAW SANITARY DIST	1	9	1	115,455	34,636.61	12	58
3	PEOTONE	VILLAGE OF PEOTONE	1	1	1	147,660	40,000.00	12	57
3	PETERSBURG	CITY OF PETERSBURG	1	9	1	104,207	30,810.00	12	58
1	PLAINFIELD	VILLAGE OF PLAINFIELD	1	1	2	195,000	58,500.00	11	61
3	RAMSEY	VILLAGE OF RAMSEY	1	9	1	43,500	13,050.00	9	60
3	RICHMOND	VILLAGE OF RICHMOND	1	1	2	51,997	15,599.08	4	58
2	ROCHESTER	VILLAGE OF ROCHESTER	1	9	1	49,310	14,793.00	7	59
2	ROCKTON	SAN DIST OF ROCKTON	1	7	1	171,932	42,094.67	6	60
1	ROSELLE	VILLAGE OF ROSELLE	2	1	2	202,038	60,611.40	11	61
2	ROUND LAKE	ROUND LAKE SAN DIST	1	1	4	535,619	160,685.73	10	60
3	ROXANA	VILLAGE OF ROXANA	1	4	1	134,380	40,314.16	1	60
3	SALT CREEK	SALT CREEK DRAINAGE BSD	3	1	2	203,776	45,600.00	9	58
3	SHABBONA	VILLAGE OF SHABBONA	1	7	1	111,326	33,397.87	12	58
2	SILVIS	CITY OF SILVIS	2	1	1	178,549	53,564.80	12	58
3	SPRING VALLEY	CITY OF SPRING VALLEY	2	5	1	367,524	104,910.00	4	58
3	SPRING VALLEY	CITY OF SPRING VALLEY	2	3	1	176,593	52,978.01	1	60
3	SPRINGFIELD	SPRINGFIELD SEW DIST	6	1	2	867,680	250,000.00	12	57
2	ST CHARLES	CITY OF ST CHARLES	3	1	2	200,393	60,117.82	9	61
2	ST FRANCISVLE	CITY OF ST FRANCISVILLE	1	9	1	34,318	10,295.00	10	61
2	ST PETER	VILLAGE OF ST PETER	1	9	1	31,242	7,600.00	6	61
2	STAUNTON	CITY OF STAUNTON	2	9	1	171,236	51,370.81	2	61
3	STEELEVILLE	VILLAGE OF STEELEVILLE	1	9	1	34,700	9,125.40	12	59
3	STOCKTON	VILLAGE OF STOCKTON	1	9	4	202,659	60,797.67	5	58
2	STREATER	CITY OF STREATER	4	3	1	504,207	151,262.31	11	60
3	SULLIVAN	CITY OF SULLIVAN	2	7	1	371,454	111,436.09	12	58
3	SYCAMORE	CITY OF SYCAMORE	3	1	2	462,970	130,500.00	10	59
3	THORNTON	VILLAGE OF THORNTON	1	1	6	109,602	32,880.62	3	58
1	TILTON	VILLAGE OF TILTON	1	7	1	260,490	78,147.00	10	60
3	TUSCOLA	CITY OF TUSCOLA	2	5	1	322,652	96,795.61	12	59

STATUS	LOCATION	NAME OF APPLICANT	POP CODE	DESCRIP TION	TYPE CONST	ESTIMATED ELIGIBLE COST OF PROJECT	FEDERAL GRANT OFFER	PROJECT APPROVED MONTH-YEAR
3	VERMILION CO	WESTVILLE BELGIUM SAN D	3	7	1	558,486	167,545.87	3 58
3	WAMAC	CITY OF WAMAC	1	9	1	73,814	22,144.27	5 58
3	WATSEKA	CITY OF WATSEKA	2	5	1	428,245	128,473.40	3 57
2	WAUCONDA	VILLAGE OF WAUCONDA	1	1	4	254,375	76,312.50	11 60
3	WAUKEGAN	NORTH SHORE SAN DIST	3	1	3	668,385	200,515.44	11 59
2	WAYNE	VILLAGE OF WAYNE CITY	1	9	1	47,084	14,125.28	3 61
3	WEST CHICAGO	CITY OF WEST CHICAGO	2	1	2	614,000	172,500.00	1 59
3	WILMINGTON	CITY OF WILMINGTON	2	7	4	282,676	84,802.65	12 57
2	WINFIELD	VILLAGE OF WINFIELD	1	9	1	369,090	82,500.00	12 59
3	WOOD DALE	VILLAGE OF WOOD DALE	1	5	1	304,711	91,012.72	5 57
2	WOOD RIVER	CITY OF WOOD RIVER	4	1	1	395,820	118,746.00	8 60
1	WOODSTOCK	CITY OF WOODSTOCK	3	7	2	452,000	135,600.00	12 61
1	WYOMING	CITY OF WYOMING	1	1	2	77,561	23,268.00	10 61
3	YORKVL BRISTOL	YORKVILLE BRISTOL SAN D	1	7	1	208,556	62,000.00	3 57
	INDIANA							
3	ALEXANDRIA	CITY OF ALEXANDRIA	3	5	1	799,543	239,862.89	2 57
2	ANDREWS	TOWN OF ANDREWS	1	7	1	112,901	33,870.43	10 60
1	ANGOLA	CITY OF ANGOLA	2	1	2	434,000	130,200.00	9 61
3	CARMEL	TOWN OF CARMEL	1	5	1	265,355	79,606.28	12 59
3	COLUMBIA CITY	CITY OF COLUMBIA CITY	2	7	1	1,018,000	250,000.00	10 58
3	DECATUR	CITY OF DECATUR	3	7	4	852,220	250,000.00	2 57
1	EDINBURG	TOWN OF EDINBURG	2	7	2	473,400	142,020.00	12 61
3	ELLETTSVILLE	TOWN OF ELLETTSVILLE	1	5	1	182,053	54,615.93	11 59
3	EVANSVILLE	CITY OF EVANSVILLE	7	6	2	1,274,769	243,624.90	12 57
3	FAIRMOUNT	TOWN OF FAIRMOUNT	2	5	1	312,858	93,857.40	2 57
2	FORT WAYNE	CITY OF FORT WAYNE	7	1	2	2,790,106	190,105.84	10 59
1	FORTVILLE	TOWN OF FORTVILLE	1	7	1	310,533	93,159.90	9 60
3	FREMONT	TOWN OF FREMONT	1	9	1	95,166	28,549.71	2 57
1	FRENCH LICK	TOWN OF FRENCH LICK	1	1	1	400,193	120,057.00	9 61

3	GALVESTON	TOWN OF GALVESTON	1	7	1	171,548	51,464.52	11	57
3	GAS CITY	CITY OF GAS CITY	2	5	1	309,329	92,798.74	10	59
1	GREENCASTLE	CITY OF GREENCASTLE	3	7	2	998,000	250,000.00	11	61
1	GRIFFITH	TOWN OF GRIFFITH	2	3	1	991,000	250,000.00	9	61
2	HOBART	CITY OF HOBART	4	7	4	909,778	250,000.00	10	60
3	HUNTINGBURG	CITY OF HUNTINGBURG	2	7	1	317,169	95,150.70	2	57
1	JEFFERSONVILLE	OAK PK CONSERVANCY DIST	1	1	1	166,000	49,800.00	9	61
3	JONESBORO	TOWN OF JONESBORO	1	5	1	277,472	83,241.54	2	57
3	LAGRANGE	TOWN OF LAGRANGE	1	7	1	206,413	61,923.84	2	57
2	MARION	CITY OF MARION	5	1	4	1,619,460	190,534.70	11	60
3	MARTINSVILLE	CITY OF MARTINSVILLE	3	7	1	740,609	221,550.46	1	59
1	MEDORA	TOWN OF MEDORA	1	9	1	91,270	27,381.00	11	61
3	MIDDLETOWN	TOWN OF MIDDLETOWN	1	7	1	248,562	74,568.86	10	59
3	MONON	TOWN OF MONON	1	5	1	131,738	39,278.00	2	57
3	MORRISTOWN	TOWN OF MORRISTOWN	1	9	1	33,133	9,939.93	2	57
2	NAPOLEON	TOWN OF NAPOLEON	1	9	1	60,414	18,124.20	10	59
2	NAPPANEE	CITY OF NAPPANEE	2	7	1	803,400	241,000.00	11	60
2	NASHVILLE	TOWN OF NASHVILLE	1	7	1	115,998	34,799.50	9	60
3	NEW ALBANY	CITY OF NEW ALBANY	5	6	1	905,580	250,000.00	11	57
1	NEWBURGH	TOWN OF NEWBURGH	1	7	1	205,045	61,513.50	10	61
1	NORTH JUDSON	TOWN OF NORTH JUDSON	1	9	5	183,380	55,000.00	11	61
3	NORTH VERNON	CITY OF NORTH VERNON	2	7	1	793,150	229,150.00	11	58
3	PALMYRA	TOWN OF PALMYRA	1	9	1	34,615	10,384.62	11	59
3	PAOLI	TOWN OF PAOLI	2	5	1	402,735	119,004.85	11	57
3	PETERSBURG	CITY OF PETERSBURG	2	7	3	386,598	115,979.34	11	57
3	PIERCETON	TOWN OF PIERCETON	1	5	1	140,743	42,222.80	10	59
2	ROCKPORT	CITY OF ROCKPORT	1	7	1	334,547	100,363.98	10	61
1	SELLERSBURG	TOWN OF SELLERSBURG	2	1	2	200,340	60,102.00	9	61
3	SHELBYVILLE	CITY OF SHELBYVILLE	4	5	5	865,275	250,000.00	11	59
2	SULLIVAN	CITY OF SULLIVAN	3	7	1	1,171,000	250,000.00	10	58
2	SUNMAN	TOWN OF SUNMAN	1	9	1	37,000	11,100.00	10	59
1	TERRE HAUTE	BD PUB WORKS AND SAFETY	6	1	1	1,923,000	250,000.00	9	61
3	TIPTON	CITY OF TIPTON	3	1	4	282,169	83,010.88	2	57
1	VERSAILLES	TOWN OF VERSAILLES	1	1	2	85,980	25,794.00	9	61

STATUS	LOCATION	NAME OF APPLICANT	POP CODE	DESCRIP TION	TYPE CONST	ESTIMATED ELIGIBLF COST OF PROJECT	FEDERAL GRANT OFFER	PROJECT APPROVED MONTH-YEAR	
3	VINCENNES	CITY OF VINCENNES	4	7	1	835,900	250,000.00	11	57
3	WABASH	CITY OF WABASH	4	7	1	1,018,565	250,000.00	10	59
3	WATERLOO	TOWN OF WATERLOO	1	7	1	222,647	66,794.00	10	60
3	WINCHESTER	CITY OF WINCHESTER	3	1	2	134,778	39,570.00	2	57
2	YORKTOWN	TOWN OF YORKTOWN	1	7	1	240,168	72,050.00	9	60
3	ZIONSVILLE	TOWN OF ZIONSVILLE	1	7	1	345,835	103,750.65	10	60
	IOWA								
2	ADEL	CITY OF ADEL	1	5	1	224,549	62,400.00	1	61
2	AFTON	TOWN OF AFTON	1	9	1	40,228	12,068.40	1	61
1	ALBIA	CITY OF ALBIA	2	7	1	254,065	66,333.70	1	61
3	ALTON	CITY OF ALTON	1	9	1	55,032	16,509.61	4	57
3	ANKENY	TOWN OF ANKENY	1	6	6	206,668	62,000.37	10	58
3	BEDFORD	CITY OF BEDFORD	1	1	2	118,000	35,400.00	2	57
3	BIRMINGHAM	TOWN OF BIRMINGHAM	1	9	1	15,432	4,629.63	3	57
3	BLOOMFIELD	CITY OF BLOOMFIELD	2	1	2	141,303	35,530.00	11	57
3	BOONE	CITY OF BOONE	4	7	1	186,006	55,735.38	1	59
3	BURLINGTON	CITY OF BURLINGTON	5	1	1	940,146	250,000.00	10	57
3	CALMAR	TOWN OF CALMAR	1	1	1	107,497	27,463.00	10	58
2	CEDAR RAPIDS	CEDAR RAPIDS AND MARION	6	7	1	3,154,258	203,000.00	1	60
1	CEDAR FALLS	CITY OF CEDAR FALLS	4	1	2	843,250	250,000.00	12	61
3	CENTRAL CITY	TOWN OF CENTRAL CITY	1	7	1	107,557	32,267.19	11	58
3	CLARENCE	TOWN OF CLARENCE	1	5	1	48,754	14,626.34	1	59
3	COGGON	TOWN OF COGGON	1	1	5	169,415	35,400.00	11	58
3	COLFAX	CITY OF COLFAX	1	6	1	126,923	38,076.95	9	57
3	CONRAD	TOWN OF CONRAD	1	1	1	95,548	28,664.59	9	57
1	COUNCIL BLUFFS	CITY OF COUNCIL BLUFFS	6	5	1	1,548,345	250,000.00	1	61
3	DAKOTA CITY	TOWN OF DAKOTA CITY	1	5	1	69,416	20,824.99	1	59
3	DAVENPORT	CITY OF DAVENPORT	6	1	2	893,342	250,000.00	10	58

3	DOWS	TOWN OF DOWS	1	1	1	89,114	26,734.22	10	58
3	DUBUQUE	CITY OF DUBUQUE	5	1	1	1,063,554	250,000.00	9	57
3	DURANT	TOWN OF DURANT	1	1	1	150,653	42,300.00	8	58
3	EAGLE GROVE	CITY OF EAGLE GROVE	2	1	1	185,517	55,655.37	1	57
3	ESTHERVILLE	CITY OF ESTHERVILLE	3	1	3	237,636	71,290.85	2	57
3	FONDA	TOWN OF FONDA	1	1	2	73,406	21,527.40	2	57
2	FOREST CITY	CITY OF FOREST CITY	2	1	7	175,000	52,500.00	1	61
3	GILMORE CITY	TOWN OF GILMORE CITY	1	9	1	30,062	8,811.23	10	58
3	GREENE	TOWN OF GREENE	1	1	7	69,135	20,170.00	1	59
3	HAWKEYE	TOWN OF HAWKEYE	1	1	1	71,031	19,650.00	10	58
3	HOPKINTON	TOWN OF HOPKINTON	1	1	1	80,822	24,237.34	1	58
1	HOSPERS	TOWN OF HOSPERS	1	9	1	73,875	22,162.50	1	61
2	IOWA FALLS	CITY OF IOWA FALLS	3	1	4	306,420	91,926.00	1	61
3	IRETON	TOWN OF IRETON	1	1	1	72,403	21,720.94	10	57
3	KELLOGG	TOWN OF KELLOGG	1	1	1	66,890	20,067.22	10	57
3	LE MARS	CITY OF LEMARS	3	5	1	351,341	104,000.00	1	57
1	LENOX	TOWN OF LENOX	1	9	1	57,382	17,214.60	1	61
2	LINN GROVE	TOWN OF LINN GROVE	1	9	1	16,824	4,500.00	11	58
3	LOHRVILLE	TOWN OF LOHRVILLE	1	1	1	74,553	22,365.98	10	57
1	MAQUOKETA	CITY OF MAQUOKETA	2	5	1	305,100	91,530.00	1	60
3	MARCUS	TOWN OF MARCUS	1	5	1	95,711	28,713.30	1	60
2	MASON CITY	CITY OF MASON CITY	5	7	1	1,776,381	250,000.00	1	61
3	MASSENA	CITY OF MASSENA	1	5	1	44,062	12,040.43	10	58
3	MOUNT AYR	TOWN OF MOUNT AYR	1	6	4	95,246	28,573.82	5	57
3	NEW LONDON	CITY OF NEW LONDON	1	6	1	120,423	35,979.09	2	57
3	NORA SPRINGS	TOWN OF NORA SPRINGS	1	7	1	162,658	38,895.39	12	58
2	NORTHWOOD	TOWN OF NORTHWOOD	1	5	1	160,129	38,625.30	2	60
3	OGDEN	TOWN OF OGDEN	1	1	1	119,980	35,994.03	11	58
3	ORANGE CITY	CITY OF ORANGE CITY	1	1	2	147,946	38,632.50	10	57
3	OTTUMWA	CITY OF OTTUMWA	5	5	1	1,070,456	250,000.00	2	57
3	OXFORD	TOWN OF OXFORD	1	1	1	23,724	7,117.31	6	58
2	PAULLINA	TOWN OF PAULLINA	1	9	1	102,435	30,730.66	1	60
3	PRIMGHAR	CITY OF PRIMGHAR	1	9	1	48,727	14,618.12	10	58
2	RED OAK	CITY OF RED OAK	3	5	1	404,500	117,180.00	1	60

STATUS	LOCATION	NAME OF APPLICANT	POP CODE	DESCRIPTION	TYPE CONST	ESTIMATED ELIGIBLE COST OF PROJECT	FEDERAL GRANT OFFER	PROJECT APPROVED MONTH-YEAR
3	RUTHVEN	TOWN OF RUTHVEN	1	9	1	26,657	7,997.12	11 58
2	SHELL ROCK	TOWN OF SHELL ROCK	1	5	1	130,008	38,977.50	1 60
3	SIBLEY	CITY OF SIBLEY	2	1	3	254,192	75,657.60	1 57
2	SIOUX CITY	CITY OF SIOUX CITY	6	7	1	7,199,488	250,000.00	1 60
3	SIOUX RAPIDS	CITY OF SIOUX RAPIDS	1	1	1	67,876	20,363.09	2 57
3	SIOUX CENTER	TOWN OF SIOUX CENTER	1	1	1	233,752	70,125.71	9 57
2	SPENCER	CITY OF SPENCER	3	1	2	750,670	191,475.00	1 60
3	SPRINGVILLE	TOWN OF SPRINGVILLE	1	6	1	52,002	15,426.00	1 57
3	SUMNER	TOWN OF SUMNER	1	1	1	131,020	39,306.29	12 57
2	TIPTON	CITY OF TIPTON	2	1	7	233,170	69,951.00	1 61
2	TRIPOLI	TOWN OF TRIPOLI	1	9	1	79,286	23,785.67	1 60
3	VILLISCA	CITY OF VILLISCA	1	1	1	107,887	32,366.24	1 57
3	WASHINGTON	CITY OF WASHINGTON	3	1	2	57,513	17,253.90	12 57
3	WELLSBURG	TOWN OF WELLSBURG	1	1	1	83,107	24,932.15	10 57
3	WHITTEMORE	TOWN OF WHITTEMORE	1	1	1	136,419	39,900.00	11 58
3	WILTON	TOWN OF WILTON	1	5	1	219,700	58,800.00	10 58
3	WINTHROP	TOWN OF WINTHROP	1	1	1	11,743	3,522.98	11 58
	KANSAS							
1	ABILENE	CITY OF ABILENE	3	1	1	406,800	122,040.00	11 61
3	ALBERT	CITY OF ALBERT	1	9	1	39,000	10,500.00	9 59
1	ALTAMONT	CITY OF ALTAMONT	1	1	1	42,245	12,673.50	9 61
2	ANDOVER	CITY OF ANDOVER	1	7	7	47,566	14,269.78	9 60
1	ARGONIA	CITY OF ARGONIA	1	1	1	53,090	15,926.86	9 61
3	ARKANSAS CITY	ARKANSAS CITY	4	7	1	750,356	225,107.08	2 57
1	ASSARIA	CITY OF ASSARIA	1	1	1	44,225	13,200.00	9 61
2	ATCHISON	CITY OF ATCHISON	4	6	1	711,429	213,428.00	9 59
1	ATTICA	CITY OF ATTICA	1	1	1	43,327	11,899.05	9 61
3	ATWOOD	CITY OF ATWOOD	1	9	1	64,253	19,212.75	1 57
1	AUGUSTA	CITY OF AUGUSTA	3	1	2	215,000	64,500.00	8 61

2	BARNARD	CITY OF BARNARD	1	9	1	32,824	9,328.38	9	60
2	BAXTER SPRINGS	CITY OF BAXTER SPRINGS	2	9	1	190,930	57,279.00	9	60
3	BENTON	TOWN OF BENTON	1	9	1	47,450	14,235.00	2	57
3	BISON	CITY OF BISON	1	9	1	40,448	12,134.62	12	57
3	BURLINGTON	CITY OF BURLINGTON	1	1	1	168,167	50,450.19	7	58
3	CEDAR VALE	CITY OF CEDAR VALE	1	9	1	40,291	12,087.31	10	60
3	CHENEY	CITY OF CHENEY	1	1	1	134,180	40,254.06	7	58
3	CLYDE	CITY OF CLYDE	1	1	1	43,328	12,998.40	7	58
3	COTTONWD FALLS	CITY COTTONWOOD FALLS	1	9	1	50,476	15,142.69	9	59
3	COUNCIL GROVE	CITY OF COUNCIL GROVE	2	9	1	149,118	44,735.44	9	60
1	DERBY	CITY OF DERBY	1	1	4	127,000	38,100.00	9	60
3	DODGE CITY	CITY OF DODGE CITY	4	1	4	559,702	167,564.14	8	57
3	DOUGLASS	CITY OF DOUGLASS	1	1	1	57,740	17,322.00	1	57
3	ELK CITY	ELK CITY	1	9	1	45,699	13,709.78	5	57
3	ELKHART	CITY OF ELKHART	1	9	1	49,546	14,864.08	7	57
3	ELLINWOOD	CITY OF ELLINWOOD	2	1	1	230,748	60,982.86	9	57
3	EMPORIA	CITY OF EMPORIA	4	1	2	528,733	133,500.00	10	57
3	FAIRVIEW	CITY OF FAIRVIEW	1	9	1	35,947	10,784.21	9	60
3	FLORENCE	CITY OF FLORENCE	1	9	1	48,626	14,110.16	9	60
2	FORT SCOTT	CITY OF FORT SCOTT	4	1	5	166,390	49,917.00	9	60
3	GALVA	CITY OF GALVA	1	1	6	17,571	5,271.30	9	60
3	GARDEN CITY	CITY OF GARDEN CITY	3	1	1	478,300	115,723.50	11	57
3	GARDNER	CITY OF GARDNER	1	1	2	109,981	32,994.47	7	57
3	GARFIELD	CITY OF GARFIELD	1	6	1	42,836	12,851.09	3	57
3	GEUDA SPRINGS	CITY OF GEUDA SPRINGS	1	1	1	27,844	8,353.09	9	59
3	GRAINFIELD	CITY OF GRAINFIELD	1	9	1	28,908	8,672.35	9	59
3	GYPSUM	CITY OF GYPSUM	1	5	1	66,780	19,050.00	5	59
1	HANSTON	CITY OF HANSTON	1	1	1	84,753	25,425.90	9	61
3	HAVILAND	CITY OF HAVILAND	1	1	1	88,000	26,400.00	11	57
3	HESSTON	CITY OF HESSTON	1	1	3	80,300	24,090.00	8	57
3	HIAWATHA	CITY OF HIAWATHA	2	1	1	290,355	87,106.61	7	58
2	HIGHLAND	CITY OF HIGHLAND	1	9	1	65,858	19,757.43	9	60
3	HOLTON	CITY OF HOLTON	2	5	1	180,928	53,668.20	7	58
3	HORTON	CITY OF HORTON	1	5	1	172,183	49,170.30	1	57

STATUS	LOCATION	NAME OF APPLICANT	POP CODE	DESCRIP TION	TYPE CONST	ESTIMATED ELIGIBLE COST OF PROJECT	FEDERAL GRANT OFFER	PROJECT APPROVED MONTH-YEAR	
3	HUTCHINSON	CITY OF HUTCHINSON	5	1	1	1,414,174	225,000.00	8	58
1	IOLA	CITY OF IOLA	3	9	1	312,245	93,673.50	8	61
3	JOHNSON CO	INDIAN CR SEWER DIST 1	1	1	1	522,162	156,648.64	8	57
1	LA CYGNE	CITY OF LA CYGNE	1	9	1	35,489	10,646.63	8	61
3	LAKIN	CITY OF LAKIN	1	1	1	135,289	40,586.82	9	59
3	LANSINGSPRINGS	DELAWARE TWP S D #3	1	9	1	64,242	19,208.10	10	60
3	LARNED	CITY OF LARNED	2	1	1	279,389	83,816.66	6	59
2	LEAVENWORTH	CITY OF LEAVENWORTH	4	7	1	271,160	81,347.97	9	60
3	LENORA	CITY OF LENORA	1	6	1	55,750	16,725.00	1	57
3	LEWIS	CITY OF LEWIS	1	6	1	36,296	10,888.95	3	57
1	MERIDEN	CITY OF MERIDEN	1	9	1	33,171	9,951.40	8	61
1	MONTEZUMA	CITY OF MONTEZUMA	1	9	1	32,500	9,750.00	8	61
3	MOUND CITY	CITY OF MOUND CITY	1	9	1	36,698	11,009.51	5	59
3	MULLINVILLE	CITY OF MULLINVILLE	1	9	1	40,242	12,072.76	1	57
3	MULVANE	CITY OF MULVANE	1	1	1	220,096	60,000.00	8	58
3	NATOMA	CITY OF NATOMA	1	1	1	99,360	29,601.00	11	59
3	NEWTON	CITY OF NEWTON	4	1	2	556,001	138,000.00	7	58
3	NICKERSON	CITY OF NICKERSON	1	6	1	74,450	22,335.00	1	57
3	OGDEN	CITY OF OGDEN	1	1	7	91,184	25,800.00	7	58
3	OLATHE	CITY OF OLATHE	3	1	1	479,197	142,800.00	1	57
3	OLPE	CITY OF OLPE	1	9	1	24,157	7,247.07	9	59
1	OSKALOOSA	CITY OF OSKALOOSA	1	9	1	38,417	11,525.10	8	61
1	OTIS	CITY OF OTIS	1	9	1	44,138	13,241.35	8	61
3	OVERBROOK	CITY OF OVERBROOK	1	9	1	31,896	9,568.66	9	59
1	PERRY	CITY OF PERRY	1	1	1	40,775	12,232.43	9	61
1	PLEASANTON	CITY OF PLEASANTON	1	9	1	108,500	32,250.00	8	61
3	PRATT	CITY OF PRATT	3	1	1	314,807	94,441.99	9	59
3	QUENEMO	CITY OF QUENEMO	1	1	1	44,615	13,335.00	7	58
3	RANSOM	CITY OF RANSOM	1	9	1	49,689	14,906.71	8	57
3	ROSE HILL	TOWN OF ROSE HILL	1	6	1	88,537	26,561.22	3	57
3	ROZEL	CITY OF ROZEL	1	9	1	33,015	9,904.38	9	59
1	SALINA	CITY OF SALINA	5	1	2	1,050,000	250,000.00	12	61

1	SAWYER	CITY OF SAWYER	1	1	1	21,211	6,363.28	9	61
3	SHAWNEE	SHAWNEE TWP SEW DIST 8	3	7	1	146,026	43,807.90	9	60
2	SHAWNEE TWP	TURKEY CREEK S D 1	4	7	1	676,200	202,860.00	9	60
3	STRONG CITY	STRONG CITY	1	9	1	65,970	19,791.04	1	57
3	SYRACUSE	CITY OF SYRACUSE	1	1	1	130,598	39,179.29	9	59
1	TRIBUNE	CITY OF TRIBUNE	1	9	1	50,512	15,153.47	8	61
2	UTICA	CITY OF UTICA	1	1	1	73,011	20,010.00	12	60
3	VALLEY CENTER	VALLEY CENTER	1	1	5	101,700	30,510.17	2	57
1	VICTORIA	CITY OF VICTORIA	1	9	1	133,230	39,969.00	10	61
3	WALTON	CITY OF WALTON	1	6	1	34,279	10,283.80	7	58
3	WATERVILLE	CITY OF WATERVILLE	1	6	1	41,406	12,421.80	1	57
3	WELLSVILLE	CITY OF WELLSVILLE	1	1	1	114,081	34,224.35	1	57
3	WETMORE	CITY OF WETMORE	1	1	1	65,815	19,744.47	9	59
3	WICHITA	CITY OF WICHITA	7	1	4	900,773	137,141.24	10	59
3	WILSEY	CITY OF WILSEY	1	9	1	15,413	4,623.98	9	60
1	WILSON	CITY OF WILSON	1	1	2	41,000	12,300.00	11	61
3	WINDOM	CITY OF WINDOM	1	9	1	27,606	8,281.93	9	60
3	WOODBINE	CITY OF WOODBINE	1	6	1	34,505	10,351.56	7	58
1	WYANDOTTE	WYANDOTTE TWP SWG D 2	1	1	1	184,678	55,403.50	5	61
1	ZURICH	CITY OF ZURICH	1	1	1	27,000	8,100.00	9	61
	KENTUCKY								
2	ASHLAND	CITY OF ASHLAND	5	7	1	928,030	250,000.00	10	58
1	AUBURN	CITY OF AUBURN	1	1	1	207,892	62,367.00	7	61
3	BARDSTOWN	CITY OF BARDSTOWN	2	1	1	262,319	78,695.00	12	57
2	BARDWELL	CITY OF BARDWELL	1	7	1	86,286	25,886.00	11	60
1	BEECHWOOD VIL	CITY BEECHWOOD VILLAGE	1	3	5	79,448	20,862.00	8	59
2	BEREA	CITY OF BEREA	2	5	4	355,540	106,662.00	5	59
2	CAMPBELLSVILLE	CITY OF CAMPBELLSVILLE	2	1	2	211,540	54,000.00	2	61
2	CAMPBL KENTON	CAMPBELL KENTON CO SDI	4	3	2	1,027,390	235,030.00	5	59
3	CARROLLTON	CITY OF CARROLLTON	2	7	1	317,425	94,500.00	1	58
1	CENTRAL CITY	CITY OF CENTRAL CITY	2	5	1	572,500	171,750.00	12	61

STATUS	LOCATION	NAME OF APPLICANT	POP CODE	DESCRIP TION	TYPE CONST	ESTIMATED ELIGIBLE COST OF PROJECT	FEDERAL GRANT OFFER	PROJECT APPROVED MONTH-YEAR
3	COLUMBIA	CITY OF COLUMBIA	1	1	1	160,000	48,000.00	10 58
2	CORBIN	CITY OF CORBIN	3	5	1	865,000	250,000.00	10 59
3	DANVILLE	CITY OF DANVILLE	3	5	4	385,000	115,500.00	10 58
3	ELIZABETHTOWN	CITY OF ELIZABETHTOWN	3	6	7	335,526	100,657.87	8 58
3	ELSMERE	CITY OF ELSMERE	2	1	2	243,575	55,980.00	7 59
3	EMINENCE	CITY OF EMINENCE	1	5	1	114,443	33,978.00	5 57
2	FLATWOODS	CITY OF FLATWOODS	1	5	1	475,496	142,649.00	3 59
3	FLEMINGSBURG	CITY OF FLEMINGSBURG	1	7	1	229,659	68,897.76	12 57
3	FLORENCE	CITY OF FLORENCE	1	5	1	758,777	225,440.00	10 59
1	FRANKLIN	CITY OF FRANKLIN	3	1	2	221,500	66,450.00	12 61
1	FRANKLIN	CITY OF FRANKLIN	3	4	2	71,300	21,390.00	6 61
2	GLASGOW	CITY OF GLASGOW	3	5	1	730,000	219,000.00	12 59
2	GREENSBURG	CITY OF GREENSBURG	1	7	1	224,502	67,350.00	12 60
3	GREENVILLE	CITY OF GREENVILLE	2	5	1	167,774	49,826.00	6 57
1	HAZARD	CITY OF HAZARD	3	6	1	687,500	206,250.00	3 58
2	HIGHLAND HTS	CITY HIGHLAND HEIGHTS	1	8	1	348,286	94,243.00	3 59
1	HODGENVILLE	CITY OF HODGENVILLE	1	7	2	137,120	41,136.00	12 61
3	HOPKINSVILLE	CITY OF HOPKINSVILLE	4	6	4	434,757	130,427.39	3 57
3	JEFFERSONTOWN	JEFFERSONTOWN COM	1	6	1	341,910	102,572.91	3 57
3	LA GRANGE	CITY OF LA GRANGE	1	7	1	191,695	51,138.00	9 57
1	LAKESIDE PARK	CITY OF LAKESIDE PARK	1	7	1	172,154	51,646.00	1 61
2	LAWRENCEBURG	CITY OF LAWRENCEBURG	1	7	2	210,456	63,136.00	12 60
3	LEITCHFIELD	CITY OF LEITCHFIELD	1	7	1	228,050	67,010.00	10 58
2	LEXINGTON	CITY OF LEXINGTON	6	1	7	3,065,115	250,000.00	9 59
1	LIBERTY	CITY OF LIBERTY	1	7	1	167,235	50,170.00	12 60
2	LOUISVILLE	OKOLONA SEW CONST DIST	2	7	1	755,262	205,074.00	2 61
3	LOUISVILLE	LOUISVL JEFFERSON CO SD	8	3	1	1,630,713	250,000.00	1 58
3	MADISONVILLE	CITY OF MADISONVILLE	4	6	1	426,349	127,904.83	5 57
3	MAYFIELD	CITY OF MAYFIELD	3	1	2	39,800	11,940.00	2 59
1	MIDDLESBOROUGH	CITY OF MIDDLESBOROUGH	4	3	2	91,168	27,350.00	12 61
1	MONTICELLO	TOWN OF MONTICELLO	2	5	5	281,791	77,357.00	11 61

3	MOREHEAD	MOREHEAD UTIL PLANT BD	2	1	4	404,310	121,293.21	5	57
3	MULDRAUGH	CITY OF MULDRAUGH	1	8	1	63,542	19,062.63	8	57
1	MURRAY	CITY OF MURRAY	3	3	1	243,920	73,176.00	12	61
3	MURRAY	CITY OF MURRAY	3	1	2	83,959	25,140.54	6	57
3	OWENSBORO	CITY OF OWENSBORO	5	7	1	1,872,537	250,000.00	3	57
3	OWENTON	CITY OF OWENTON	1	1	2	18,100	5,430.20	9	57
2	OWINGSVILLE	CITY OF OWINGSVILLE	1	5	1	176,000	52,800.00	1	61
1	PADUCAH	MCCRACKEN CO SAN DST 1	1	7	1	111,889	33,566.00	2	61
3	PADUCAH	CITY OF PADUCAH	5	1	2	6,331	1,899.00	9	58
1	PRESTONSBURG	CITY OF PRESTONSBURG	2	7	1	486,775	146,032.00	12	60
1	RADCLIFF	CITY OF RADCLIFF	2	1	1	277,785	83,335.00	7	61
2	SCOTTSVILLE	CITY OF SCOTTSVILLE	1	1	1	199,498	53,351.00	3	61
3	SHIVELY	CITY OF SHIVELY	1	7	1	634,340	150,000.00	11	59
1	VERSAILLES	CITY OF VERSAILLES	2	1	2	218,953	65,685.00	11	59
3	WEST LIBERTY	CITY OF WEST LIBERTY	1	7	1	123,400	37,020.09	7	57
2	WEST POINT	CITY OF WEST POINT	1	5	1	116,000	34,800.00	1	61
	LOUISIANA								
3	ABBEVILLE	CITY OF ABBEVILLE	1	1	2	343,003	98,299.71	10	57
3	AMITE CITY	TOWN OF AMITE CITY	2	1	1	154,088	46,226.37	8	58
1	BAKER	CITY OF BATON ROUGE	2	3	2	900,000	250,000.00	11	61
3	BASTROP	CITY OF BASTROP	4	3	1	64,687	19,406.13	9	59
2	BATON ROUGE	CITY PAR BATON ROUGE	5	1	1	1,210,000	250,000.00	11	59
2	BATON ROUGE	CITY PAR BATON ROUGE	6	8	1	970,000	250,000.00	11	60
2	BATON ROUGE	CITY PAR BATON ROUGE	7	1	5	1,210,000	250,000.00	12	59
1	BATON ROUGE	CITY OF BATON ROUGE	7	5	1	2,610,000	250,000.00	10	61
2	BERNICE	TOWN OF BERNICE	1	9	1	107,899	32,369.70	12	59
2	BOGALUSA	CITY OF BOGALUSA	4	5	5	759,800	227,940.00	6	60
2	BUNKIE	TOWN OF BUNKIE	2	7	1	506,667	152,000.00	12	60
1	CADDO PARISH	CADDO PARISH S D 2	1	1	1	114,000	34,200.00	7	59
2	CADDO PARISH	CADDO PARISH SD 5	2	3	1	421,000	126,300.00	9	61
2	CADDO PARISH	CADDO PARISH S D 5	3	1	1	474,600	134,254.71	8	60
3	CALCASIEU PAR	POLICE JURY S D 2	1	1	1	126,781	38,034.22	3	57

STATUS	LOCATION	NAME OF APPLICANT	POP CODE	DESCRIP TION	TYPE CONST	ESTIMATED ELIGIBLE COST OF PROJECT	FEDERAL GRANT OFFER	PROJECT APPROVED MONTH-YEAR
2	CHATHAM	VILLAGE OF CHATHAM	1	9	1	40,021	12,006.42	6 60
3	CHURCH POINT	TOWN OF CHURCH POINT	2	5	1	222,641	66,792.22	8 57
3	COVINGTON	CITY OF COVINGTON	3	1	1	264,836	77,109.00	3 58
2	CULLEN	TOWN OF CULLEN	1	5	1	96,214	28,864.08	1 60
2	DE QUINCY	CITY OF DE QUINCY	2	9	1	129,296	38,788.65	11 60
2	DERIDDER	CITY OF DERIDDER	3	7	2	418,644	125,593.31	10 59
3	FARMERVILLE	TOWN OF FARMERVILLE	1	1	1	142,051	42,615.34	11 57
3	FRANKLINTON	TOWN OF FRANKLINTON	1	1	1	69,139	20,741.59	9 57
3	GONZALES	TOWN OF GONZALES	1	7	1	541,265	161,000.00	2 58
3	GUEYDAN	TOWN OF GUEYDAN	1	1	3	153,643	46,092.82	8 59
1	HARAHAN	CITY OF HARAHAN	3	7	1	844,690	250,000.00	12 61
1	HOUMA	CITY OF HOUMA	4	9	1	893,040	250,000.00	3 61
3	JACKSON	TOWN OF JACKSON	3	6	1	83,835	25,150.39	1 59
2	JEFFERSON PAR	JEFFERSON PARISH SD 4	3	7	1	417,551	125,265.30	10 58
3	JEFFERSON PAR	JEFFERSON PARISH SD 1	4	1	1	841,871	250,000.00	1 57
2	JUNCTION CITY	VILLAGE JUNCTION CITY	1	9	1	17,061	5,118.43	6 61
1	KAPLAN	TOWN OF KAPLAN	3	7	2	138,570	41,570.00	8 61
2	LAFAYETTE	LAFAYETTE PARISH S D 1	3	3	1	666,668	200,000.00	10 60
2	LAFAYETTE	CITY OF LAFAYETTE	5	7	1	1,108,460	250,000.00	11 59
2	LAKE ARTHUR	TOWN OF LAKE ARTHUR	2	5	1	357,031	107,109.41	2 60
2	LEESVILLE	TOWN OF LEESVILLE	2	1	3	52,000	15,600.00	6 60
3	LOCKPORT	TOWN OF LOCKPORT	1	6	1	232,840	69,851.95	3 57
2	LUTCHER	TOWN OF LUTCHER	1	7	1	262,593	78,777.92	6 59
3	MOORINGSPORT	TOWN OF MOORINGSPORT	1	6	1	82,966	24,889.70	3 57
2	MORGANZA	TOWN OF MORGANZA	1	9	1	107,661	32,298.28	8 61
2	NEW IBERIA	CITY OF NEW IBERIA	4	1	3	854,593	250,000.00	8 57
1	OPELOUSAS	CITY OF OPELOUSAS	4	1	2	47,496	14,248.86	9 61
3	PATTERSON	SEWAGE DISTRICT 1	2	1	1	108,700	31,239.39	2 57
2	PLAQUEMINE	TOWN OF PLAQUEMINE	3	7	1	150,974	45,292.34	9 59
2	PORT BARRE	TOWN OF PORT BARRE	1	5	1	165,357	49,607.21	7 60
3	PORT ALLEN	TOWN OF PORT ALLEN	2	7	4	342,496	102,748.93	7 59

2	S CHARLES PAR	ST CHARLES PARISH SD 1	2	5	1	594,609	167,000.00	1	59
2	SAINT TAMMANY	SAINT TAMMANY PAR S D 1	3	7	1	97,175	29,152.40	8	61
3	SLIDELL	TOWN OF SLIDELL	2	7	1	434,821	130,446.20	8	57
3	ST BERNARD	ST BERNARD SEW DIST 1	3	7	4	473,888	142,166.29	3	57
2	ST JOSEPH	TOWN OF ST JOSEPH	1	9	1	98,354	29,506.25	8	60
3	TALLULAH	VILLAGE OF TALLULAH	3	1	1	346,926	104,077.88	2	57
2	TERREBONNE PAR	TERREBONNE PARISH SD 14	2	3	2	258,333	77,500.00	12	61
2	TERREBONNE PAR	TERREBONNE PARISH SD 13	1	1	1	188,874	56,662.18	5	60
3	TERREBONNE PAR	TERREBONNE PARISH SD 12	1	9	1	59,992	17,994.00	1	58
2	VINTON	TOWN OF VINTON	1	1	1	296,898	86,867.07	8	57
3	WESTLAKE	TOWN OF WESTLAKE	1	6	1	273,228	81,968.34	8	57
3	WINNFIELD	CITY OF WINNFIELD	3	7	1	391,900	117,569.97	5	57
1	WINNSBORO	TOWN OF WINNSBORO	2	9	5	377,000	113,100.00	10	61
	MAINE								
1	AUGUSTA	AUGUSTA SEWERAGE DIST	4	5	1	854,000	250,000.00	6	61
3	BRISTOL	TOWN OF BRISTOL	1	1	1	10,523	3,157.00	6	60
1	CARIBOU	CARIBOU UTIL DIST	3	7	5	882,000	250,000.00	12	61
3	KENNEBUNK	KENNEBUNK SEWER DIST	2	7	1	835,339	246,693.53	5	57
2	OLD TOWN	UNIVERSITY OF MAINE	1	6	1	50,000	15,000.00	7	60
3	ORCHARD BEACH	TOWN OLD ORCHARD BEACH	2	3	1	227,400	68,220.00	5	60
3	ORCHARD BEACH	TOWN OLD ORCHARD BEACH	2	1	1	576,674	173,002.27	12	59
3	PRESQUE ISLE	PRESQUE ISLE SEW DIST	3	1	7	468,855	140,656.57	6	58
2	SACO	CITY OF SACO	1	7	1	90,000	27,000.00	8	57
1	SACO	CITY OF SACO	4	1	1	52,000	15,600.00	10	61
2	SANFORD	SANFORD SEWERAGE DIST	4	9	1	994,300	250,000.00	2	60
3	WINTHROP	WINTHROP WATER DIST	1	7	1	226,563	65,761.65	7	57

STATUS	LOCATION	NAME OF APPLICANT	POP CODE	DESCRIPTION	TYPE CONST	ESTIMATED ELIGIBLE COST OF PROJECT	FEDERAL GRANT OFFER	PROJECT APPROVED MONTH-YEAR	
	MARYLAND								
1	ABERDEEN	COMMISSIONERS ABERDEEN	3	7	5	528,400	132,100.00	5	61
1	ANNE ARUNDEL	ANNE ARUNDEL COUNTY S C	4	7	1	1,569,927	250,000.00	9	60
3	ANNAPOLIS	CITY OF ANNAPOLIS	4	7	4	666,115	169,062.00	3	59
3	ANNE ARUNDEL	ANNE ARUNDEL COUNTY S C	3	3	1	76,741	14,053.00	6	58
3	ANNE ARUNDEL	ANNE ARUNDEL COUNTY S C	3	3	1	49,122	14,345.00	3	59
3	BALTIMORE	CITY OF BALTIMORE	9	3	1	895,604	198,000.00	2	58
1	BOONSBORO	TOWN OF BOONSBORO	1	5	1	150,000	30,000.00	1	60
3	CABIN JOHN	WASH SUB SAN COM	1	3	1	154,348	35,383.00	4	57
3	CENTREVILLE	TOWN OF CENTREVILLE	1	3	1	76,186	20,437.00	5	60
3	CENTREVILLE	TOWN OF CENTREVILLE	1	5	1	371,179	73,800.00	3	59
2	EASTON	TOWN OF EASTON	2	1	3	409,500	102,375.00	2	60
2	ELKTON	TOWN OF ELKTON	3	7	1	1,200,000	225,000.00	10	58
3	EMMITSBURG	TOWN OF EMMITSBURG	1	7	1	277,106	67,837.00	1	58
1	FEDERALSBURG	CITY OF FEDERALSBURG	1	5	1	1,007,649	250,000.00	11	58
2	GAITHERSBURG	WASH SUB SAN COM	2	3	1	1,028,942	148,000.00	2	58
3	GLEN BURNIE	ANNE ARUNDEL SAN COM	2	3	1	476,416	142,925.02	2	57
3	GREENBELT	WASH SUB SAN COM	3	3	1	172,764	38,386.00	1	60
3	GWYNNS FALLS	BALTIMORE COUNTY	4	3	1	193,189	43,525.00	10	58
3	HAGERSTOWN	CITY OF HAGERSTOWN	5	1	7	323,244	92,517.00	2	57
1	HAVRE DE GRACE	CITY OF HAVRE DE GRACE	3	1	1	800,000	200,000.00	7	61
2	HYATTSVILLE	WASH SUB SAN COM	6	3	1	417,557	49,000.00	5	60
2	INDIAN HEAD	TOWN OF INDIAN HEAD	1	1	2	75,100	18,775.00	7	61
3	LAUREL	WASH SUB SAN COM	2	7	1	1,217,161	250,000.00	12	57
3	LEONARDTOWN	CITY OF LEONARDTOWN	1	1	1	152,099	45,629.89	2	57
2	MOORES BRANCH	BALTIMORE COUNTY	5	3	1	347,140	69,400.00	3	59
3	NORTH BEACH	TOWN OF NORTH BEACH	1	5	1	220,871	63,982.00	6	57
1	ODENTON	ANNE ARUNDEL COUNTY S C	1	3	5	457,518	114,379.00	10	61
1	OXFORD	TOWN OF OXFORD	1	9	1	157,396	39,349.00	8	61
1	POCOMOKE CITY	CITY OF POCOMOKE CITY	2	5	1	831,175	166,235.00	1	60

1	PRINCESS ANNE	SOMERSET CO SAN DIST	1	7	1	166,000	41,750.00	12	60
2	RIVERSIDE DIST	WICOMICO CO URBAN S COM	1	3	1	81,000	20,250.00	1	61
2	RIVIERA BEACH	ANNE ARUNDEL SAN COM	3	1	7	93,371	23,128.00	7	60
3	ROCKVILLE	CITY OF ROCKVILLE	3	3	1	16,840	3,738.00	12	57
2	ROCKVILLE	WASH SUB SAN COM	3	4	1	709,797	143,618.00	12	59
3	ROCKVILLE	WASH SURB SAN COM	4	3	1	888,532	250,000.00	4	57
2	SALISBURY	CITY OF SALISBURY	4	3	1	564,088	112,818.00	11	57
3	SLIGO BRANCH	WASH SUB SAN COMM	6	3	2	104,626	24,700.00	10	57
3	TOWSON RUN	BALTIMORE COUNTY	4	3	1	278,238	61,382.00	10	58
1	UNION BRIDGE	TOWN OF UNION BRIDGE	1	7	1	230,750	57,687.00	10	59
2	WESTERNPORT	UPPER POTOMAC RIVER COM	2	3	1	376,412	75,282.00	12	59
2	WILLIAMSPORT	TOWN OF WILLIAMSPORT	1	7	1	288,226	72,056.00	11	59
	MASSACHUSETTS								
3	AGAWAM	TOWN OF AGAWAM	4	3	1	12,965	3,889.46	10	59
3	AGAWAM	TOWN OF AGAWAM	4	3	1	149,840	44,952.00	4	57
3	AGAWAM	TOWN OF AGAWAM	4	3	1	250,477	75,143.00	11	58
2	AMHERST	TOWN OF AMHERST	3	5	4	710,000	213,000.00	7	59
3	ASHBURNHAM	ASHBURNHAM WESTMINSTER	3	1	1	44,503	13,350.77	10	59
1	ATTLEBORO	CITY OF ATTLEBORO	5	1	2	713,138	213,941.48	9	61
2	AYER	TOWN BD OF PUB WORKS	2	1	4	496,500	148,950.00	3	61
3	BARNSTABLE	TOWN OF BARNSTABLE	4	1	3	115,138	34,541.62	4	57
3	BILLERICA	COUNTY OF MIDDLESEX	2	1	1	119,405	35,821.58	11	57
2	BORDEN COLONY	COMM OF MASSACHUSETTS	2	6	1	48,948	14,684.48	10	59
1	BOSTON	METROPOLITAN DIST COMM	9	1	2	2,672,450	250,000.00	11	61
2	BOSTON	CITY OF BOSTON	9	5	1	334,560	100,368.00	5	60
2	BRAINTREE	TOWN OF BRAINTREE	4	3	2	17,973	5,391.90	4	61
3	CHELSEA	METROPOLITAN DIST COMM	9	1	1	1,149,253	250,000.00	10	59
2	DALTON	TOWN OF DALTON	2	3	1	705,000	211,500.00	4	60
3	DIGHTON	DIGHTON REHOBOTH SCH D	2	6	1	85,401	25,620.16	6	60
1	DUDLEY	TOWN OF DUDLEY	3	3	1	18,900	5,670.00	7	61
3	E LONGMEADOW	TOWN OF E LONGMEADOW	2	1	2	9,597	2,878.84	2	57
1	E LONGMEADOW	TOWN OF E LONGMEADOW	4	3	2	346,600	103,980.00	8	61
2	EASTHAMPTON	TOWN OF EASTHAMPTON	4	6	1	501,550	150,465.00	2	57
1	GREENFIELD	TOWN OF GREENFIELD	4	3	2	166,800	50,040.00	10	61

STATUS	LOCATION	NAME OF APPLICANT	POP CODE	DESCRIP TION	TYPE CONST	ESTIMATED ELIGIBLE COST OF PROJECT	FEDERAL GRANT OFFER	PROJECT APPROVED MONTH-YEAR
1	HINGHAM	BD OF SEWER COMMS	4	4	1	109,500	32,850.00	10 61
1	HOLYOKE	CITY OF HOLYOKE	6	5	1	3,136,000	250,000.00	7 59
2	HUDSON	TOWN OF HUDSON	3	1	4	596,105	178,831.50	6 61
3	IPSWICH	TOWN OF IPSWICH	2	5	1	466,904	140,071.22	2 58
1	LENOX	TOWN OF LENOX	2	1	1	148,400	44,520.00	9 61
2	LONGMEADOW	TOWN OF LONGMEADOW	3	3	1	300,000	90,000.00	6 59
3	LONGMEADOW	TOWN OF LONGMEADOW	3	5	1	603,010	180,902.93	3 57
2	LUDLOW	THE BOARD OF SEWER COMM	3	7	4	101,000	30,300.00	10 60
3	MANSFIELD	TOWN OF MANSFIELD	2	1	6	59,007	17,701.95	5 59
3	MARSHFIELD	BOARD OF SEWER COMM	2	6	1	110,000	33,000.00	1 58
2	MATTAPOISETT	OLD ROCHESTER SCH DIST	3	1	1	53,140	15,942.00	10 59
1	MIDDLEBOROUGH	TOWN OF MIDDLEBOROUGH	4	7	2	151,000	45,300.00	10 61
3	MILFORD	TOWN OF MILFORD	4	1	7	358,430	105,000.00	1 58
1	N ATTLEBORO	TOWN NORTH ATTLEBOROUGH	4	1	7	64,800	19,440.00	9 60
3	N ATTLEBORO	TOWN NORTH ATTLEBOROUGH	4	1	4	36,477	10,943.06	5 59
3	N MIDDLESEX	NORTH MIDDLESX SCH DIST	1	1	1	38,400	11,520.13	7 59
3	NANTUCKET	TOWN OF NANTUCKET	2	3	3	63,588	19,076.38	4 59
3	NORFOLK CO	METROPOLITAN DIST COM	5	3	1	2,136,725	250,000.00	12 57
1	NORTH ADAMS	CITY OF NORTH ADAMS	1	3	2	259,651	77,895.45	10 61
1	NORTHAMPTON	CITY OF NORTHAMPTON	5	3	1	280,000	84,000.00	10 58
2	NORTHAMPTON	CITY OF NORTHAMPTON	5	1	1	675,614	202,684.20	4 57
2	PITTSFIELD	CITY OF PITTSFIELD	6	3	2	60,500	18,000.00	10 61
2	PITTSFIELD	CITY OF PITTSFIELD	6	3	1	1,062,000	250,000.00	2 60
2	PITTSFIELD	CITY OF PITTSFIELD	6	7	1	2,500,000	250,000.00	7 59
2	RANDOLPH	TOWN OF RANDOLPH	3	3	1	888,700	250,000.00	9 59
3	RUSSELL	TOWN OF RUSSELL	1	1	1	88,853	26,655.93	2 59
1	SHREWSBURY	TOWN OF SHREWSBURY	4	1	1	1,190,000	250,000.00	9 61
2	SOUTH HADLEY	TOWN OF SOUTH HADLEY	1	5	1	645,884	193,765.20	5 59
1	SPRINGFIELD	CITY OF SPRINGFIELD	7	3	2	52,109	15,632.00	11 61
2	SPRINGFIELD	CITY OF SPRINGFIELD	7	1	3	209,047	62,714.10	5 61
2	SPRINGFIELD	CITY OF SPRINGFIELD	7	3	2	105,405	31,621.50	3 61
3	SPRINGFIELD	CITY OF SPRINGFIELD	7	3	1	353,864	106,159.26	3 60

1	SPRINGFIELD	CITY OF SPRINGFIELD	7	1	3	79,670	23,901.00	9	61
3	SUNDERLAND	TOWN OF SUNDERLAND	1	1	1	91,374	27,412.07	5	59
1	W SPRINGFIELD	TOWN OF W SPRINGFIELD	4	3	1	840,000	250,000.00	5	61
2	WAKEFIELD	TOWN OF WAKEFIELD	4	3	2	57,777	17,333.00	8	61
2	WAKEFIELD	TOWN OF WAKEFIELD	4	3	1	150,000	45,000.00	11	60
3	WESTWOOD	TOWN OF WESTWOOD	3	3	1	174,698	52,409.53	7	60
2	WESTWOOD	METROPOLITAN DIST COMM	4	3	1	565,670	169,700.95	2	60
2	WEYMOUTH	BOARD OF PUBLIC WORKS	5	3	1	244,000	73,200.00	10	60
2	WILLIAMSTOWN	TOWN OF WILLIAMSTOWN	3	5	4	896,502	250,000.00	5	59
2	WILMINGTON	METROPOLITAN DIST COMM	5	3	1	930,709	250,000.00	8	59
2	WOBURN	CITY OF WOBURN	6	3	1	54,115	16,234.41	10	59
3	WOBURN	CITY OF WOBURN	4	3	1	96,085	28,825.50	9	59
3	WORCESTER	CITY OF WORCESTER	7	1	2	28,735	8,620.59	3	60
	MICHIGAN								
3	ALMA	CITY OF ALMA	3	1	2	174,412	51,810.00	5	59
3	ALMONT	VILLAGE OF ALMONT	1	1	1	143,522	43,056.45	11	57
2	BATTLE CREEK	CITY OF BATTLE CREEK	5	1	2	3,367,667	250,000.00	1	60
3	BREITUNG TWP	IRON MOUNTAIN KINGSFORD	4	1	1	457,512	135,600.00	6	59
3	BRIGHTON	CITY OF BRIGHTON	1	7	4	223,285	66,432.68	11	57
3	BRONSON	CITY OF BRONSON	1	5	1	216,629	64,988.70	4	58
1	CADILLAC	CITY OF CADILLAC	4	1	1	737,500	221,250.00	11	61
2	CENTER LINE	CITY OF CENTER LINE	3	3	1	1,307,080	250,000.00	1	61
3	CHEBOYGAN	CITY OF CHEBOYGAN	3	3	1	14,639	4,391.68	1	60
3	CHESANING	VILLAGE OF CHESANING	1	1	1	184,857	55,456.94	4	58
3	COLOMA	CITY OF COLOMA	1	5	1	98,472	29,541.60	1	58
3	CORUNNA	CITY OF CORUNNA	1	6	1	165,349	49,604.82	2	57
3	DEARBORN	CITY OF DEARBORN	6	3	1	309,450	90,000.00	1	58
3	DETROIT	CITY OF DETROIT	9	1	2	2,065,800	250,000.00	3	60
2	DETROIT	CITY OF DETROIT	9	4	3	265,650	79,695.00	2	61
2	DETROIT	CITY OF DETROIT	9	3	1	1,112,390	250,000.00	1	59
2	DETROIT	CITY OF DETROIT	9	3	2	1,440,000	250,000.00	11	59

STATUS	LOCATION	NAME OF APPLICANT	POP CODE	DESCRIPTION	TYPE CONST	ESTIMATED ELIGIBLE COST OF PROJECT	FEDERAL GRANT OFFER	PROJECT APPROVED MONTH-YEAR
2	DETROIT	CITY OF DETROIT	9	2	2	771,500	231,450.00	12 60
2	DETROIT	CITY OF DETROIT	9	3	1	680,500	156,600.00	1 61
2	DOWAGIAC	CITY OF DOWAGIAC	3	1	1	323,403	97,020.90	1 61
3	DUNDEE	VILLAGE OF DUNDEE	1	5	1	352,165	105,649.62	2 57
3	EAST CHINA	EAST CHINA TOWNSHIP	1	1	7	75,116	22,534.82	12 58
3	ELBERTA	VILLAGE OF ELBERTA	1	1	1	85,378	25,200.00	4 57
3	ESCANABA	CITY OF ESCANABA	4	1	7	214,684	58,200.00	2 59
3	EVART	CITY OF EVART	1	1	1	80,717	20,789.00	4 58
1	FLINT	CITY OF FLINT	7	1	4	8,166,000	500,000.00	11 61
		BEECHER METRO DIST						
3	FLUSHING	CITY OF FLUSHING	1	7	1	421,112	126,333.65	6 57
3	FOWLER	VILLAGE OF FOWLER	1	1	7	35,328	10,598.26	1 58
3	FREMONT	CITY OF FREMONT	2	1	3	195,076	58,500.00	3 59
3	GRAND RAPIDS	CITY OF GRAND RAPIDS	7	1	2	499,011	149,703.22	5 57
3	GRANT	VILLAGE OF GRANT	1	1	1	97,568	29,270.49	12 58
3	GROSSE POINTE	MILK RIVER DRAINAGE BRD	4	4	1	441,565	132,469.31	2 60
2	GROSSE POINTE	COUNTY OF WAYNE	7	4	6	711,384	213,415.28	3 61
2	HOLLAND	CITY OF HOLLAND	4	1	1	937,887	250,000.00	1 61
3	HOWELL	CITY OF HOWELL	2	1	4	328,019	97,500.00	1 59
3	IMLAY CITY	VILLAGE OF IMLAY CITY	1	7	1	307,461	92,238.41	12 57
3	IRON RIVER	CITY OF IRON RIVER	2	1	1	196,468	58,940.43	11 57
3	IRONWOOD	CITY OF IRONWOOD	4	7	1	671,256	188,700.00	6 57
3	L ANSE	VILLAGE OF L ANSE	1	7	1	245,519	73,655.62	4 57
3	LAPEER	CITY OF LAPEER	3	7	1	499,652	82,223.61	8 57
3	MANISTIQUE	CITY OF MANISTIQUE	3	7	1	698,067	209,420.08	1 58
3	MARLETTE	CITY OF MARLETTE	1	7	1	314,559	87,600.00	9 57
3	MASON	CITY OF MASON	2	1	3	382,283	89,770.05	5 58
2	MERIDIAN	TOWNSHIP OF MERIDIAN	4	3	2	946,694	250,000.00	12 61
3	MT PLEASANT	CITY OF MOUNT PLEASANT	4	7	1	439,307	131,792.08	11 57
3	MUNISING	CITY OF MUNISING	2	7	1	364,312	109,293.71	11 58

3	MUSKEGON	CITY OF MUSKEGON	5	1	2	860,767	250,000.00	3	58
2	NEW BALTIMORE	CITY OF NEW BALTIMORE	1	7	1	585,000	175,000.00	11	59
3	OAKLAND COUNTY	OAKLAND CO DEPT PUB WKS	8	3	1	938,223	250,000.00	1	60
3	ONTONAGON	VILLAGE OF ONTONAGON	1	7	1	311,894	78,631.91	6	57
3	PAW PAW	VILLAGE OF PAW PAW	1	7	4	325,180	97,553.97	3	60
3	PORTLAND	VILLAGE OF PORTLAND	2	7	1	317,355	95,206.43	6	57
3	RICHMOND	VILLAGE OF RICHMOND	1	1	2	267,135	80,140.66	11	60
2	ROCHESTER	VILLAGE OF ROCHESTER	3	1	4	423,000	99,624.38	6	61
3	ROSCOMMON	TOWN OF ROSCOMMON	1	1	1	128,762	38,505.00	3	57
3	SAUGATUCK	VILLAGE OF SAUGATUCK	1	1	1	117,109	32,217.00	2	58
3	SLT ST MARIE	CITY OF SAULT ST MARIE	4	7	1	1,500,000	250,000.00	2	59
3	SOUTH LYON	CITY OF SOUTH LYON	1	1	4	83,226	24,967.68	6	59
3	ST CLAIR	CITY OF ST CLAIR	2	5	1	560,692	157,159.50	3	57
3	STAMBAUGH	CITY OF STAMBAUGH	1	1	1	199,288	58,047.90	11	57
3	TAWAS CITY	CITY OF TAWAS CITY	1	1	1	115,922	34,596.60	5	59
3	TRAVERSE CITY	CITY OF TRAVERSE CITY	4	1	2	478,437	143,531.18	11	57
3	WARREN	CITY OF WARREN	6	7	1	326,693	97,710.00	1	59
3	WOODLAND	VILLAGE OF WOODLAND	1	5	1	112,545	33,763.74	2	60
2	YPSILANTI	TWP OF YPSILANTI	4	3	1	625,486	157,156.76	4	60
	MINNESOTA								
3	ADAMS	VILLAGE OF ADAMS	1	7	1	162,470	39,000.00	12	57
2	ANNANDALE	VILLAGE OF ANNANDALE	1	9	1	143,979	43,193.55	2	61
3	ARLINGTON	CITY OF ARLINGTON	1	7	1	173,975	52,192.44	1	59
1	BARNUM	VILLAGE OF BARNUM	1	5	1	91,307	27,391.95	12	61
2	BELLE PLAINE	BOROUGH OF BELLE PLAINE	1	9	1	347,344	104,203.12	2	61
3	BLOOMG PRAIRIE	VIL OF BLOOMING PRAIRIE	1	1	1	218,626	65,587.84	12	57
3	BOVEY COLER	BOVEY AND COLERAINE	2	7	1	421,807	91,431.00	2	57
2	BUFFALO	VILLAGE OF BUFFALO	1	1	2	309,047	75,826.00	2	61
2	BUHL	TOWN OF BUHL	1	1	1	156,013	46,804.02	12	59
3	CAMBRIDGE	VILLAGE OF CAMBRIDGE	2	5	1	394,046	118,213.92	4	57
3	CANTON	VILLAGE OF CANTON	1	7	1	82,550	23,760.00	12	57
2	CASS LAKE	VILLAGE OF CASS LAKE	1	4	1	67,287	20,190.00	12	59
3	CLINTON	TOWN OF CLINTON	1	9	1	85,090	25,527.07	3	57

STATUS	LOCATION	NAME OF APPLICANT	POP CODE	DESCRIP TION	TYPE CONST	ESTIMATED ELIGIBLE COST OF PROJECT	FEDERAL GRANT OFFER	PROJECT APPROVED MONTH-YEAR
2	COLD SPRING	VILLAGE OF COLD SPRING	1	7	1	258,689	76,361.38	2 61
3	CROOKSTON	CITY OF CROOKSTON	3	9	1	529,473	137,350.00	12 57
1	DETROIT LAKES	CITY OF DETROIT LAKES	3	1	2	433,223	129,966.78	12 61
3	E GRAND FORKS	CITY OF E GRAND FORKS	3	9	1	966,982	250,000.00	12 57
3	ELK RIVER	VILLAGE OF ELK RIVER	1	1	1	165,902	49,638.00	12 58
3	FARMINGTON	VILLAGE OF FARMINGTON	1	7	1	399,042	109,199.25	12 57
3	FERGUS FALLS	CITY OF FERGUS FALLS	4	1	7	473,276	141,982.85	12 58
3	GAYLORD	CITY OF GAYLORD	1	7	1	272,550	76,765.00	12 58
3	GRAND MARAIS	VILLAGE OF GRAND MARAIS	1	1	1	72,239	21,600.00	3 59
1	GRAND RAPIDS	VILLAGE OF GRAND RAPIDS	3	7	1	656,102	196,830.60	11 61
3	HAWLEY	VILLAGE OF HAWLEY	1	1	1	136,704	41,011.09	12 59
1	JORDAN	CITY OF JORDAN	1	9	1	150,000	45,000.00	6 61
2	LAFAYETTE	VILLAGE OF LAFAYETTE	1	5	1	146,216	40,269.90	12 59
3	LITTLE FALLS	CITY OF LITTLE FALLS	3	7	1	636,337	190,901.19	12 57
1	MAPLE LAKE	VILLAGE OF MAPLE LAKE	1	7	1	299,923	89,976.80	2 61
3	MAZEPPA	VILLAGE OF MAZEPPA	1	6	1	69,993	20,997.90	12 57
3	MILACA	VILLAGE OF MILACA	1	9	1	249,642	69,180.00	12 59
2	MONTEVIDEO	CITY OF MONTEVIDEO	3	1	7	474,443	121,500.00	3 61
1	MONTICELLO	VILLAGE OF MONTICELLO	1	7	1	257,023	77,106.93	12 59
3	MORA	CITY OF MORA	1	1	7	342,395	79,768.20	4 57
1	N BRANCH	VILLAGE OF NORTH BRANCH	1	5	1	140,115	42,034.53	2 61
3	NORTHFIELD	CITY OF NORTHFIELD	3	5	1	785,427	235,628.12	3 57
3	PARK RAPIDS	CITY OF PARK RAPIDS	2	6	1	196,366	58,910.03	3 57
2	PAYNESVILLE	VILL OF PAYNESVILLE	1	5	7	361,587	108,476.09	2 61
2	PINE CITY	VILLAGE OF PINE CITY	1	9	1	222,945	60,000.00	2 61
3	PINE RIVER	VILLAGE OF PINE RIVER	1	5	1	174,321	49,205.08	12 58
3	PINE ISLAND	VILLAGE OF PINE ISLAND	1	7	1	298,518	89,555.39	12 57
3	PLUMMER	VILLAGE OF PLUMMER	1	9	1	46,538	13,961.54	12 57
2	PRINCETON	VILLAGE OF PRINCETON	1	9	1	182,236	48,630.00	12 59
2	RED WING	CITY OF RED WING	4	7	1	1,111,750	250,000.00	12 58
2	RUSH CITY	VILLAGE OF RUSH CITY	1	9	1	114,379	34,313.61	2 61

3	SANDSTONE	VILLAGE OF SANDSTONE	1	1	1	272,588	81,776.47	12 59
3	SAUK RAPIDS	VILLAGE OF SAUK RAPIDS	2	3	1	145,555	43,666.78	5 59
2	SHAKOPEE	CITY OF SHAKOPEE	2	5	1	661,448	198,434.40	12 59
1	SLEEPY EYE	CITY OF SLEEPY EYE	2	9	1	286,135	85,840.37	2 61
2	SPRING GROVE	VILLAGE OF SPRING GROVE	1	7	1	254,007	67,962.00	2 61
1	ST PETER	CITY OF ST PETER	3	5	5	706,100	211,830.00	12 61
3	STEWART	VILLAGE OF STEWART	1	7	1	143,315	42,994.77	12 57
3	STILLWATER	CITY OF STILLWATER	3	7	1	960,781	250,000.00	12 58
3	TOWER	CITY OF TOWER	1	7	1	164,150	43,500.00	12 57
3	TWO HARBORS	CITY OF TWO HARBORS	2	6	4	299,605	89,881.58	3 57
2	WALNUT GROVE	VILLAGE OF WALNUT GROVE	1	5	1	145,000	43,500.00	1 60
3	WATERVILLE	CITY OF WATERVILLE	1	5	1	272,090	81,627.23	3 57
2	WYKOFF	VILLAGE OF WYKOFF	1	5	1	167,500	50,250.00	2 61
3	ZUMBROTA	VILLAGE OF ZUMBROTA	1	7	1	562,160	168,648.00	12 59
	MISSISSIPPI							
3	ABERDEEN	CITY OF ABERDEEN	3	9	1	340,272	102,081.59	1 59
3	ACKERMAN	TOWN OF ACKERMAN	1	5	1	109,377	32,813.22	6 57
2	ALCORN A M COL	MISS STATE BLDG COMM	1	9	1	125,025	37,507.39	3 61
3	BALDWYN	TOWN OF BALDWYN	1	5	1	126,796	38,038.85	2 59
1	BAY SPRINGS	TOWN OF BAY SPRINGS	1	9	2	135,754	40,726.05	9 60
3	BELMONT	TOWN OF BELMONT	1	9	1	60,100	18,029.93	9 59
3	BILOXI	CITY OF BILOXI	5	7	1	870,000	250,000.00	4 59
3	BOONEVILLE	CITY OF BOONEVILLE	2	3	1	16,192	4,857.72	5 60
3	BOONEVILLE	CITY OF BOONEVILLE	2	1	2	9,320	2,795.94	9 58
1	BUDE	TOWN OF BUDE	1	9	1	62,800	18,840.00	2 61
2	BYHALIA	TOWN OF BYHALIA	1	9	1	49,247	14,774.10	5 60
3	CANTON	CITY OF CANTON	3	9	1	44,365	13,309.55	7 60
2	CARTHAGE	TOWN OF CARTHAGE	1	9	1	210,514	63,154.00	4 61
1	CHARLESTON	CITY OF CHARLESTON	2	9	1	158,149	47,444.70	12 60
1	CLARKSDALE	CITY OF CLARKSDALE	4	7	1	1,125,000	250,000.00	5 59
3	CLEVELAND	CITY OF CLEVELAND	3	9	1	88,184	26,455.25	5 59
3	CLINTON	CITY OF CLINTON	1	9	1	134,376	40,312.91	1 59

STATUS	LOCATION	NAME OF APPLICANT	POP CODE	DESCRIP TION	TYPE CONST	ESTIMATED ELIGIBLE COST OF PROJECT	FEDERAL GRANT OFFER	PROJECT APPROVED MONTH-YEAR
3	COLDWATER	TOWN OF COLDWATER	1	9	1	39,779	11,933.79	7 58
2	COLUMBIA	CITY OF COLUMBIA	3	9	1	53,800	16,141.00	1 61
2	COLUMBUS	CITY OF COLUMBUS	4	9	1	534,000	160,200.00	5 60
2	COMO	TOWN OF COMO	1	9	1	50,951	15,285.18	6 61
1	CORINTH	CITY OF CORINTH	3	1	3	373,318	111,995.00	3 60
3	CRENSHAW	CITY OF CRENSHAW	1	9	1	32,750	9,825.06	5 59
2	DECATUR	TOWN OF DECATUR	1	9	1	102,000	30,600.00	1 60
3	ELLISVILLE	MISS STATE BLDG COMM	2	9	1	42,709	12,812.69	6 57
3	ELLISVILLE	TOWN OF ELLISVILLE	2	9	1	18,078	5,423.49	1 60
3	FAYETTE	TOWN OF FAYETTE	1	9	1	99,736	29,761.10	6 57
3	FOREST	CITY OF FOREST	2	9	1	186,486	55,425.02	4 58
2	GULFPORT	CITY OF GULFPORT	4	1	7	895,000	250,000.00	9 59
3	HAZLEHURST	CITY OF HAZELHURST	2	9	1	49,616	14,884.93	5 59
2	HAZLEHURST	CITY OF HAZLEHURST	2	9	1	154,400	46,320.00	10 60
3	HERNANDO	TOWN OF HERNANDO	1	9	1	40,651	12,195.56	6 57
3	HERNANDO	TOWN OF HERNANDO	1	3	1	19,749	5,924.85	12 58
1	HOLLY SPRINGS	CITY OF HOLLY SPRINGS	3	9	1	175,000	52,500.00	6 61
3	HOUSTON	TOWN OF HOUSTON	1	9	1	41,719	12,515.64	12 56
2	ITTA BENA	TOWN OF ITTA BENA	1	9	1	95,377	27,399.00	6 61
3	ITTA BENA	MISS VOCATIONAL SCHOOL	1	9	1	54,147	16,243.97	6 57
1	JACKSON CO BC	JACKSON CO BOARD OF SUP	1	1	1	528,667	158,600.00	9 61
1	JACKSON CO E A	JACKSON CO BD OF SUP	1	5	1	290,000	87,000.00	10 61
1	JACKSON CO K A	JACKSON CO BD OF SUP	1	5	1	465,000	139,500.00	10 61
1	JACKSON CO ES	JACKSON CO BOARD OF SUP	2	1	1	641,000	192,300.00	9 61
1	JACKSON	CITY OF JACKSON	7	9	1	581,500	174,450.00	6 61
1	JACKSON	CITY OF JACKSON	7	9	1	919,551	250,000.00	6 60
1	LAUREL	CITY OF LAUREL	5	9	1	624,279	187,283.64	6 60
1	LELAND	CITY OF LELAND	2	9	1	358,920	107,676.00	2 61
3	LUMBERTON	CITY OF LUMBERTON	1	9	1	108,653	32,596.01	10 58
1	LYON	TOWN OF LYON	1	9	1	19,725	5,917.57	12 58
1	MAGEE	TOWN OF MAGEE	1	9	1	71,400	21,420.00	6 59
2	MAGNOLIA	TOWN OF MAGNOLIA	1	9	1	180,000	53,354.00	8 59

2	MCCOMB CITY	CITY OF MCCOMB CITY	4	9	1	151,900	45,570.00	9	59
1	MEADVILLE	TOWN OF MEADVILLE	1	9	1	25,000	7,500.00	12	61
2	MERIDIAN	CITY OF MERIDIAN	5	3	1	884,105	250,000.00	2	59
3	MERIDIAN	CITY OF MERIDIAN	5	7	1	1,992,100	250,000.00	12	56
3	MORTON	CITY OF MORTON	1	5	1	395,658	118,697.32	6	59
3	MOUNT OLIVE	TOWN OF MOUNT OLIVE	1	9	1	60,567	18,170.03	4	60
3	NEW ALBANY	CITY OF NEW ALBANY	2	9	1	336,277	100,883.04	6	59
2	NEW HOULKA	TOWN OF NEW HOULKA	1	9	1	40,000	12,000.00	6	59
3	NEWTON	CITY OF NEWTON	2	9	1	133,894	40,168.09	1	58
1	NOXAPATER	TOWN OF NOXAPATER	1	9	1	15,500	4,500.00	8	61
3	OCEAN SPRINGS	CITY OF OCEAN SPRINGS	2	7	1	506,007	151,802.19	2	59
2	PASCAGOULA	CITY OF PASCAGOULA	4	7	7	454,503	136,350.96	4	59
1	PETAL	E FORREST UTILITY DIST	2	9	1	196,418	58,925.00	6	61
1	PURVIS	TOWN OF PURVIS	1	9	1	166,400	49,920.00	6	61
3	ROLLING FORK	TOWN OF ROLLING FORK	1	9	1	123,035	36,910.62	6	58
3	RULEVILLE	TOWN OF RULEVILLE	1	9	1	56,931	17,079.31	5	58
2	SARDIS	TOWN OF SARDIS	1	9	1	119,000	35,700.00	5	59
3	SENATOBIA	CITY OF SENATOBIA	1	9	1	46,879	14,063.73	5	59
2	SENATOBIA	CITY OF SENATOBIA	2	9	1	23,000	6,900.00	6	61
3	STARKVILLE	CITY OF STARKVILLE	3	1	1	155,060	46,517.87	1	57
3	STATE COLLEGE	MISS STATE UNIVERSITY	3	5	4	80,418	24,125.58	5	59
2	SUMMIT	S W MISS JUNIOR COLLEGE	1	9	1	26,000	7,800.00	8	60
2	TUNICA	TOWN OF TUNICA	1	9	1	106,667	32,000.00	5	60
3	TYLERTOWN	TOWN OF TYLERTOWN	1	9	1	137,869	41,360.73	8	59
3	UNIVERSITY	UNIV OF MISSISSIPPI	2	5	1	374,470	112,341.05	6	57
2	UTICA	MISS STATE BLDG COMM	1	9	1	31,991	9,597.27	2	61
1	VERONA	TOWN OF VERONA	1	9	1	61,609	18,482.85	2	61
2	WALNUT GROVE	TOWN OF WALNUT GROVE	1	9	1	21,000	6,300.00	5	59
3	WAYNESBORO	CITY OF WAYNESBORO	2	4	1	111,890	33,566.94	12	59
3	WEST POINT	CITY OF WEST POINT	3	9	1	83,450	25,034.88	5	58
2	WHITFIELD	MISS STATE BLDG COMM	1	9	1	40,686	12,205.80	12	60
3	WHITFIELD	MISS STATE BLDG COMM	1	9	1	29,293	8,787.84	11	59
3	WIGGINS	TOWN OF WIGGINS	1	9	1	41,544	12,463.10	12	56

STATUS	LOCATION	NAME OF APPLICANT	POP CODE	DESCRIPTION	TYPE CONST	ESTIMATED ELIGIBLE COST OF PROJECT	FEDERAL GRANT OFFER	PROJECT APPROVED MONTH-YEAR
	MISSOURI							
1	ANDERSON	CITY OF ANDERSON	1	9	1	58,911	17,673.24	12 60
2	ARCADIA	CITY OF ARCADIA	1	9	1	28,881	7,963.51	11 59
3	AURORA	CITY OF AURORA	2	6	1	534,598	160,379.66	8 57
3	BELLE	TOWN OF BELLE	1	9	1	48,514	11,985.30	12 56
3	BENTON	CITY OF BENTON	1	9	1	31,272	9,381.76	5 57
3	BERNIE	CITY OF BERNIE	1	9	1	44,883	13,465.01	9 60
1	BLAND	CITY OF BLAND	1	9	1	22,521	6,756.00	10 61
3	BLUE SPRINGS	CITY OF BLUE SPRINGS	1	9	1	73,684	22,105.28	1 57
2	BONNE TERRE	CITY OF BONNE TERRE	2	9	1	166,399	49,919.62	1 61
3	BOWLING GREEN	CITY OF BOWLING GREEN	1	9	1	150,400	39,048.00	7 57
1	BRUNSWICK	CITY OF BRUNSWICK	1	9	1	59,524	14,245.00	6 61
3	BUCKNER	TOWN OF BUCKNER	1	9	1	35,150	10,545.29	10 57
3	BUTLER	CITY OF BUTLER	2	3	1	28,620	7,599.00	10 59
3	CABOOL	CITY OF CA3OOL	1	1	2	38,969	11,690.80	10 57
1	CAMDENTON	CITY OF CAMDENTON	1	9	1	224,200	67,260.00	8 61
2	CAMERON	CITY OF CAMERON	2	3	1	150,477	45,143.19	10 60
3	CAMPBELL	CITY OF CAMPBELL	1	5	1	29,803	8,941.02	8 57
3	CARTHAGE	CITY OF CARTHAGE	4	1	1	213,832	59,670.00	1 57
3	CASSVILLE	CITY OF CASSVILLE	1	9	1	85,156	25,546.86	3 59
3	CENTER	VILLAGE OF CENTER	1	9	1	13,700	4,110.18	2 57
3	CENTRALIA	CITY OF CENTRALIA	1	9	1	91,103	27,330.83	10 59
2	CHAMOIS	CITY OF CHAMOIS	1	9	1	21,364	6,075.00	5 61
1	CHARLESTON	CITY OF CHARLESTON	3	3	2	30,360	9,108.00	7 61
3	CHILLICOTHE	CITY OF CHILLICOTHE	3	1	1	407,764	122,329.34	12 57
3	CLINTON	CITY OF CLINTON	3	9	1	181,398	54,419.52	10 59
1	COLUMBIA	CITY OF COLUMBIA	5	9	4	418,000	125,400.00	11 61
3	CONCORDIA	CITY OF CONCORDIA	1	9	1	120,049	36,014.59	11 59
2	DE SOTO	CITY OF DE SOTO	3	9	1	203,137	60,941.23	9 60
1	DESLOGE	CITY OF DESLOGE	2	9	1	145,834	43,750.00	7 61

3	DREXEL	CITY OF DREXEL	1	9	1	20,857	6,257.14	11	59
2	EDINA	CITY OF EDINA	1	9	1	23,363	7,008.91	10	59
1	EL DORADO	CITY OF EL DORADO	2	9	4	165,500	49,650.00	11	61
3	ELLISVILLE	CITY OF ELLISVILLE	1	9	1	228,479	64,200.00	10	58
2	EXCELSIOR SPGS	CITY OF EXCELSIOR SPGS	3	9	1	540,000	162,000.00	9	60
1	FARBER	TOWN OF FARBER	1	9	1	28,820	8,646.00	10	61
1	FESTUS	CITY OF FESTUS	3	4	1	323,300	96,990.00	12	59
3	FORNFELT	TOWN OF FORNFELT	1	9	1	48,344	14,503.40	12	56
3	GRANDVIEW	CITY OF GRANDVIEW	1	9	1	445,972	129,378.93	12	57
2	GREENFIELD	TOWN OF GREENFIELD	1	9	1	83,808	24,118.50	10	59
3	HAMILTON	CITY OF HAMILTON	1	9	1	45,328	13,598.39	8	60
3	HIGGINSVILLE	CITY OF HIGGINSVILLE	2	5	1	395,435	118,630.67	12	56
3	HOLDEN	CITY OF HOLDEN	1	1	1	121,700	36,510.00	7	57
[illegible]	HORNERSVILLE	CITY OF HORNERSVILLE	1	9	1	33,719	10,015.23	1	57
3	HUMANSVILLE	CITY OF HUMANSVILLE	1	9	1	12,950	3,885.00	3	57
2	ILLMO	CITY OF ILLMO	1	9	1	48,904	14,671.00	9	60
1	INDEPENDENCE	CITY OF INDEPENDENCE	5	5	1	1,510,090	250,000.00	5	59
3	IRONTON	CITY OF IRONTON	1	9	1	44,490	12,837.71	1	57
3	JOPLIN	CITY OF JOPLIN	5	1	3	809,745	242,923.65	7	57
3	KAHOKA	CITY OF KAHOKA	1	9	1	29,344	8,803.29	1	57
1	KANSAS CITY	CITY OF KANSAS CITY	8	1	1	1,397,000	250,000.00	9	61
1	KANSAS CITY	CITY OF KANSAS CITY	8	4	1	1,200,000	250,000.00	9	61
2	KEYTESVILLE	CITY OF KEYTESVILLE	1	9	1	37,591	10,575.00	10	59
2	KIRKSVILLE	CITY OF KIRKSVILLE	4	7	4	592,780	177,833.89	10	60
2	KNOB NOSTER	CITY OF KNOB NOSTER	1	9	1	136,435	40,930.00	9	60
3	LA MONTE	CITY OF LA MONTE	1	9	1	20,749	6,224.75	8	57
3	LADDONIA	CITY OF LADDONIA	1	9	1	9,878	2,963.48	10	59
3	LANCASTER	CITY OF LANCASTER	1	9	1	47,136	14,140.70	11	59
2	LEES SUMMIT	CITY OF LEES SUMMIT	2	9	1	1,018,000	250,000.00	9	60
1	LIBERAL	CITY OF LIBERAL	1	9	1	37,478	11,243.09	12	60
3	LICKING	CITY OF LICKING	1	9	1	38,313	11,494.04	10	58
1	LILBOURN	CITY OF LILBOURN	1	9	1	74,800	22,440.00	8	61
3	LINCOLN	VILLAGE OF LINCOLN	1	9	1	32,408	7,566.00	2	57
3	LOUISIANA	CITY OF LOUISIANA	2	7	1	215,435	64,630.58	10	58
3	MACON	CITY OF MACON	2	5	1	556,735	167,020.47	1	59

STATUS	LOCATION	NAME OF APPLICANT	POP CODE	DESCRIP TION	TYPE CONST	ESTIMATED ELIGIBLE COST OF PROJECT	FEDERAL GRANT OFFER	PROJECT APPROVED MONTH-YEAR
3	MACON	CITY OF MACON	2	4	1	17,548	5,065.50	12 59
2	MANCHESTER	CITY OF MANCHESTER	1	5	1	363,959	89,400.00	11 60
3	MARCELINE	CITY OF MARCELINE	2	7	1	256,703	77,011.16	3 57
1	MARSHFIELD	CITY OF MARSHFIELD	1	9	1	90,400	27,120.25	10 59
3	MARSHALL	CITY OF MARSHALL	3	1	4	407,799	122,339.81	3 57
3	MARTINSBURG	CITY OF MARTINSBURG	1	9	1	7,835	1,982.47	8 57
2	MILAN	CITY OF MILAN	1	9	1	85,400	25,620.00	5 60
1	MOBERLY	CITY OF MOBERLY	4	9	1	16,595	4,978.43	10 60
3	MONETT	CITY OF MONETT	2	7	6	81,604	24,481.10	10 59
3	MOUNTAIN GROVE	CITY OF MOUNTAIN GROVE	2	9	1	88,463	26,410.44	7 58
3	O FALLON	CITY OF O FALLON	1	9	1	121,802	24,300.00	11 59
2	OAK GROVE	CITY OF OAK GROVE	1	9	1	110,000	33,000.00	12 60
3	ORAN	CITY OF ORAN	1	9	1	63,418	18,673.00	8 58
3	OWENSVILLE	TOWN OF OWENSVILLE	1	9	1	132,615	39,784.46	10 59
3	PACIFIC	CITY OF PACIFIC	1	9	4	189,651	56,395.34	10 58
2	PALMYRA	CITY OF PALMYRA	1	9	1	104,931	31,387.20	10 60
3	PLATTE CITY	CITY OF PLATTE CITY	1	9	1	83,520	23,970.00	10 58
3	PLEASANT HILL	CITY OF PLEASANT HILL	1	9	1	92,990	27,897.17	8 57
2	POPLAR BLUFF	CITY OF POPLAR BLUFF	4	9	1	636,748	191,024.25	5 60
3	PRINCETON	CITY OF PRINCETON	1	9	1	32,170	9,650.88	3 59
1	RAVENWOOD	CITY OF RAVENWOOD	1	9	1	23,316	6,994.80	3 61
2	RAYTOWN	CITY OF RAYTOWN	4	9	1	1,077,341	250,000.00	9 58
3	RICHLAND	CITY OF RICHLAND	1	9	1	60,358	18,107.66	7 58
2	ROCKPORT	CITY OF ROCKPORT	1	9	1	86,061	25,818.30	11 60
2	SAINT JAMES	CITY OF SAINT JAMES	1	9	1	49,841	13,400.00	9 60
3	SARCOXIE	CITY OF SARCOXIE	1	9	1	23,586	7,075.88	11 59
3	SENATH	CITY OF SENATH	1	9	1	47,464	14,239.13	10 59
1	SMITHVILLE	CITY OF SMITHVILLE	1	9	1	72,580	21,774.00	7 61
3	SPRINGFIELD	CITY OF SPRINGFIELD	6	3	1	398,000	119,400.00	11 59
3	SPRINGFIELD SW	CITY OF SPRINGFIELD	6	1	7	833,333	250,000.00	7 57
3	SPRINGFIELD NW	CITY OF SPRINGFIELD	6	1	7	959,558	177,000.00	2 57
3	ST CHARLES	CITY OF ST CHARLES	4	9	1	252,225	69,975.77	1 59

3	ST GENEVIEVE	ST GENEVIEVE	2	4	1	187,300	56,190.10	12	59
1	ST JOSEPH	CITY OF ST JOSEPH	6	1	1	58,000	17,400.00	9	61
1	ST JOSEPH	CITY OF ST JOSEPH	6	1	1	57,000	17,100.00	9	61
1	ST JOSEPH	CITY OF ST JOSEPH	6	1	1	300,000	90,000.00	9	61
3	STANBERRY	CITY OF STANBERRY	1	1	1	127,741	38,322.33	2	57
3	STEELVILLE	CITY OF STEELVILLE	1	5	1	127,034	29,985.00	2	57
3	STEELE	CITY OF STEELE	1	9	1	147,356	44,206.81	11	59
3	STOCKTON	CITY OF STOCKTON	1	9	1	20,400	6,120.00	7	58
3	STOVER	TOWN OF STOVER	1	9	1	25,727	7,714.80	12	56
1	STURGEON CITY	CITY OF STURGEON	1	9	1	35,392	10,617.66	11	61
3	SULLIVAN	CITY OF SULLIVAN	2	9	1	108,742	28,575.80	7	58
3	TARKIO	CITY OF TARKIO	1	9	1	99,665	29,899.56	10	58
3	THAYER	CITY OF THAYER	1	9	1	142,224	42,667.32	4	57
3	TIPTON	CITY OF TIPTON	1	9	1	13,683	4,104.77	10	59
3	TIPTON	CITY OF TIPTON	1	9	1	43,372	13,011.85	3	57
2	TRENTON	CITY OF TRENTON	3	9	1	35,303	10,000.00	10	60
3	TRENTON	CITY OF TRENTON	3	5	1	445,031	133,509.42	1	57
3	TROY	CITY OF TROY	1	6	1	180,342	49,500.00	1	57
3	UNION	CITY OF UNION	2	4	1	15,643	4,693.06	3	57
3	VANDALIA	CITY OF VANDALIA	2	9	1	30,100	9,030.08	7	57
3	WELLSVILLE	CITY OF WELLSVILLE	1	9	1	29,159	8,663.00	7	57
3	WENTZVILLE	CITY OF WENTZVILLE	1	9	1	32,791	9,837.25	2	60
1	WESTON	CITY OF WESTON	1	9	1	76,669	23,000.76	1	59
2	WHEATON	CITY OF WHEATON	1	9	1	18,291	5,487.43	9	60
1	WRIGHT CITY	CITY OF WRIGHT CITY	1	7	1	63,500	19,050.00	10	61
	MONTANA								
3	BIG TIMBER	CITY OF BIG TIMBER	1	9	1	53,893	16,167.89	1	58
3	BILLINGS	CITY OF BILLINGS	5	3	1	338,157	101,447.24	3	57
1	BILLINGS	CITY OF BILLINGS	5	3	1	623,064	150,518.80	5	61
3	BOULDER	MONT STATE TRNG SCHOOL	1	9	1	87,740	26,322.03	10	58
3	BOX ELDER	COUNTY OF HILL	1	9	1	31,792	9,537.55	1	60

STATUS	LOCATION	NAME OF APPLICANT	POP CODE	DESCRIP TION	TYPE CONST	ESTIMATED ELIGIBLE COST OF PROJECT	FEDERAL GRANT OFFER	PROJECT APPROVED MONTH-YEAR
3	BOZEMAN	CITY OF BOZEMAN	4	1	7	34,373	10,311.96	10 60
3	BRIDGER	TOWN OF BRIDGER	1	9	1	25,574	7,672.27	4 60
1	BUTTE	METRO S S DISTRICT	6	3	1	1,118,877	250,000.00	11 57
2	CASCADE	TOWN OF CASCADE	1	9	1	63,000	18,900.00	4 61
2	COLUMBUS	TOWN OF COLUMBUS	1	1	1	115,025	34,507.50	9 61
3	CULBERTSON	TOWN OF CULBERTSON	1	9	1	46,062	13,818.60	5 57
3	CUT BANK	CITY OF CUT BANK	2	9	1	200,971	60,291.20	8 57
3	DEER LODGE	CITY OF DEER LODGE	2	9	1	212,492	63,747.60	7 58
3	DODSON	TOWN OF DODSON	1	9	1	25,440	7,632.00	8 57
3	DRUMMOND	TOWN OF DRUMMOND	1	9	1	43,272	12,981.49	4 60
3	EUREKA	TOWN OF EUREKA	1	6	1	68,687	20,606.22	10 59
3	FORT BENTON	CITY OF FORT BENTON	1	9	1	129,057	38,717.22	10 59
2	FROMBERG	TOWN OF FROMBERG	1	9	1	46,200	13,860.00	4 60
3	GERALDINE	TOWN OF GERALDINE	1	9	1	12,546	3,763.99	3 57
3	GLASGOW	CITY OF GLASGOW	2	9	4	145,167	43,550.02	10 58
3	GLENDIVE	RURAL IMP DIST 1	1	9	1	83,163	24,948.80	5 58
3	GLENDIVE	CITY OF GLENDIVE	3	9	1	568,717	170,615.25	2 59
3	GREAT FALLS	CITY OF GREAT FALLS	5	5	1	1,620,011	250,000.00	10 58
3	HARLOWTON	CITY OF HARLOWTON	1	9	1	47,949	14,384.61	4 58
3	HELENA	VOCATIONAL SCHOOL GIRLS	1	9	1	40,309	12,092.68	10 59
3	HELENA	CITY OF HELENA	4	5	1	542,000	162,600.00	4 58
3	KALISPELL	CITY OF KALISPELL	3	1	7	217,070	65,120.95	8 58
1	KEVIN	TOWN OF KEVIN	1	9	1	61,293	18,387.77	4 60
2	LAUREL	CITY OF LAUREL	2	7	4	451,058	135,317.37	10 60
3	LIVINGSTON	CITY OF LIVINGSTON	3	5	1	520,260	156,078.00	10 59
3	MALTA	CITY OF MALTA	1	9	1	131,360	39,408.07	9 57
3	MANHATTAN	TOWN OF MANHATTAN	1	9	1	50,790	15,236.97	4 60
2	MILES CITY	CITY OF MILES CITY	3	9	1	327,294	98,188.00	10 60
1	PHILIPSBURG	TOWN OF PHILIPSBURG	1	1	1	63,040	18,912.00	9 61
3	PLEVNA	TOWN OF PLEVNA	1	9	1	19,973	5,992.14	7 57
1	POLSON	CITY OF POLSON	1	9	1	243,000	72,900.00	1 60

3	RICHEY	TOWN OF RICHEY	1	9	1	29,685	8,905.64	3	57
3	SHELBY	CITY OF SHELBY	2	9	1	91,137	27,341.21	5	58
3	SHERIDAN	TOWN OF SHERIDAN	1	9	1	70,326	21,097.84	4	58
3	SIDNEY	CITY OF SIDNEY	2	9	1	175,000	52,500.00	3	59
3	STEVENSVILLE	TOWN OF STEVENSVILLE	1	9	1	32,779	9,833.61	11	59
2	THREE FORKS	TOWN OF THREE FORKS	1	9	5	87,000	26,100.00	7	60
3	TOWNSEND	TOWN OF TOWNSEND	1	9	4	48,851	14,655.12	5	58
3	TWIN BRIDGES	MONT ST CHILDRENS HOME	1	9	1	40,871	12,261.30	9	57
3	VALIER	TOWN OF VALIER	1	9	1	35,254	10,576.20	8	59
3	WARM SPRINGS	MONTANA STATE HOSPITAL	2	5	1	128,897	38,669.10	8	59
3	WHITE SUL SPR	TOWN OF WHITE SUL SPR	1	9	1	64,540	19,362.05	9	57
3	WHITEHALL	CITY OF WHITEHALL	1	9	1	103,006	30,901.70	11	59
2	WHITEFISH	CITY OF WHITEFISH	2	5	1	350,000	105,000.00	10	60
3	WINIFRED	TOWN OF WINIFRED	1	9	1	26,565	7,969.61	1	60
3	WOLF POINT	CITY OF WOLF POINT	2	5	1	78,954	23,686.29	5	58
	NEBRASKA								
3	ANSLEY	VILLAGE OF ANSLEY	1	1	1	47,499	14,249.72	12	60
3	ARAPAHOE	CITY OF ARAPAHOE	1	5	1	53,174	15,952.35	8	58
3	AURORA	CITY OF AURORA	1	1	1	89,502	26,850.45	9	59
3	BEATRICE	CITY OF BEATRICE	4	5	1	605,110	181,533.00	7	57
3	BEAVER CITY	CITY OF BEAVER CITY	1	9	4	25,743	7,723.06	8	58
3	BELLEVUE	CITY OF BELLEVUE	2	5	1	265,501	68,973.00	8	59
1	BENKELMAN	CITY OF BENKELMAN	1	9	1	41,880	12,560.00	8	61
3	BENNET	VILLAGE OF BENNET	1	1	1	37,646	8,324.00	12	59
3	BERTRAND	VILLAGE OF BERTRAND	1	9	1	29,155	8,739.90	9	59
3	BLADEN	VILLAGE OF BLADEN	1	9	1	21,523	5,569.67	9	59
3	BLAIR	CITY OF BLAIR	2	1	1	137,422	41,226.71	12	57
3	BRADSHAW	VILLAGE OF BRADSHAW	1	9	1	28,388	8,516.43	12	60
1	BROKEN BOW	CITY OF BROKEN BOW	2	5	1	237,650	71,294.85	1	61
1	CHADRON	CITY OF CHADRON	3	1	1	134,006	40,201.88	9	61
3	CLARKS	VILLAGE OF CLARKS	1	9	1	38,841	11,652.47	4	58
3	CLATONIA	VILLAGE OF CLATONIA	1	9	1	16,470	4,941.19	11	58

STATUS	LOCATION	NAME OF APPLICANT	POP CODE	DESCRIP TION	TYPE CONST	ESTIMATED ELIGIBLE COST OF PROJECT	FEDERAL GRANT OFFER	PROJECT APPROVED MONTH-YEAR
3	CLAY CENTER	VILLAGE OF CLAY CENTER	1	9	1	14,023	4,207.04	12 57
2	CLEARWATER	VILL OF CLEARWATER	1	5	1	47,400	12,972.00	10 59
3	CORTLAND	VILLAGE OF CORTLAND	1	9	1	20,420	6,126.11	12 57
3	COZAD	CITY OF COZAD	2	1	1	118,137	35,441.13	7 57
3	CRETE	CITY OF CRETE	2	1	2	83,095	23,016.83	11 58
2	CURTIS	CITY OF CURTIS	1	1	1	56,207	16,862.16	12 60
3	DAVID CITY	CITY OF DAVID CITY	1	1	2	76,969	23,090.70	11 58
3	DOUGLAS CO	DOUGLAS CO SAN I DIST	1	1	1	196,403	54,150.00	8 58
3	EAST SARPY CO	SANITARY IMP DISTRICT	2	5	1	393,320	108,391.93	12 59
3	ELKHORN	VILLAGE OF ELKHORN	1	5	1	64,315	19,294.78	8 58
3	ELMWOOD	VILLAGE OF ELMWOOD	1	6	1	15,360	4,608.00	1 58
3	FAIRBURY	CITY OF FAIRBURY	3	6	1	266,776	80,033.10	9 57
3	FIRTH	VILLAGE OF FIRTH	1	9	1	23,471	6,936.00	9 60
3	FORT CALHOUN	CITY OF FORT CALHOUN	1	9	1	25,062	7,518.51	9 59
2	FRANKLIN	CITY OF FRANKLIN	1	7	1	87,125	26,137.50	9 60
2	FRIEND	CITY OF FRIEND	1	1	1	73,350	22,005.00	9 60
3	FUNK	VILLAGE OF FUNK	1	9	1	20,178	6,053.44	10 60
1	GARLAND	VILLAGE OF GARLAND	1	9	1	16,572	4,971.66	8 61
3	GILTNER	VILLAGE OF GILTNER	1	9	1	19,827	5,336.21	9 59
2	GRANT	VILLAGE OF GRANT	1	9	1	25,007	7,502.24	9 60
1	GUIDE ROCK	VILLAGE OF GUIDE ROCK	1	5	1	36,800	11,040.00	9 59
3	HALLAM	VILLAGE OF HALLAM	1	9	1	12,632	3,789.62	8 58
3	HAMPTON	VILLAGE OF HAMPTON	1	9	1	18,115	5,434.46	9 59
3	HASTINGS	CITY OF HASTINGS	4	1	4	464,842	139,271.20	7 57
3	HEBRON	CITY OF HEBRON	1	7	1	190,200	57,060.00	9 59
3	HICKMAN	VILLAGE OF HICKMAN	1	7	1	21,222	6,366.56	9 59
3	HILDRETH	VILLAGE OF HILDRETH	1	9	1	10,917	3,275.11	12 57
3	HOLDREGE	CITY OF HOLDREGE	2	1	3	243,468	73,040.53	9 57
3	INDIANOLA	CITY OF INDIANOLA	1	1	3	16,972	5,091.78	9 57
1	JACKSON	VILLAGE OF JACKSON	1	9	1	20,500	2,245.00	2 61
3	JUNIATA	VILLAGE OF JUNIATA	1	9	1	20,001	6,000.30	10 57

3	KEARNEY	CITY OF KEARNEY	4	5	6	352,282	105,684.65	9	59
3	KIMBALL	CITY OF KIMBALL	2	9	1	71,134	21,340.49	12	57
3	LEXINGTON	CITY OF LEXINGTON	3	1	1	445,906	114,600.00	9	57
1	LEXINGTON	CITY OF LEXINGTON	3	7	2	108,826	32,647.68	10	61
2	LINCOLN	CITY OF LINCOLN	7	3	1	360,000	102,132.23	12	60
2	MADISON	CITY OF MADISON	1	9	1	98,716	22,950.00	12	60
3	MCCOOL JCT	VILLAGE MCCOOL JUNCTION	1	9	1	21,939	6,105.00	9	59
3	MILFORD	VILLAGE OF MILFORD	1	5	1	79,420	23,826.00	6	57
1	MILLARD	VILLAGE OF MILLARD	1	1	1	245,000	73,500.00	9	61
1	MILLIGAN	VILL OF MILLIGAN	1	9	1	36,560	10,968.00	8	61
3	MONROE	VILLAGE OF MONROE	1	7	1	26,895	7,500.00	10	58
1	NEBRASKA CITY	CITY OF NEBRASKA CITY	3	7	1	605,000	181,500.00	8	59
1	NIOBRARA	VILLAGE OF NIOBRARA	1	9	1	21,275	6,382.50	9	60
3	NORFOLK	CITY OF NORFOLK	4	7	1	318,330	95,499.13	7	57
3	NORTH LOUP	CITY OF NORTH LOUP	1	9	1	11,158	3,347.53	8	58
3	OGALLALA	CITY OF OGALLALA	2	7	1	255,825	76,747.64	9	57
2	OMAHA	CITY OF OMAHA	8	3	2	1,015,000	250,000.00	10	61
2	OMAHA	CITY OF OMAHA	8	3	1	521,329	142,130.93	1	59
2	OMAHA	CITY OF OMAHA	8	7	1	9,216,950	250,000.00	9	60
3	OMAHA	CITY OF OMAHA	8	1	2	2,030,490	250,000.00	10	57
2	OMAHA	CITY OF OMAHA	8	3	1	3,265,778	250,000.00	11	58
3	ORCHARD	VILLAGE OF ORCHARD	2	9	1	40,482	12,144.62	10	59
3	OSCEOLA	CITY OF OSCEOLA	1	9	1	26,227	7,868.30	9	57
3	PALMYRA	VILLAGE OF PALMYRA	1	9	1	20,665	6,199.57	9	59
1	PETERSBURG	VILL OF PETERSBURG	1	9	1	40,838	12,251.00	8	61
3	PLAINVIEW	CITY OF PLAINVIEW	1	9	1	56,034	14,520.00	8	58
3	PLATTSMOUTH	CITY OF PLATTSMOUTH	2	7	1	325,531	73,017.00	8	59
1	PLEASANT DALE	VILL OF PLEASANT DALE	1	9	1	12,378	3,713.40	8	61
2	PRAGUE	VILLAGE OF PRAGUE	1	9	1	49,428	14,828.00	9	60
3	RALSTON	CITY OF RALSTON	1	3	1	69,768	18,300.00	11	58
3	RED CLOUD	CITY OF RED CLOUD	1	5	1	82,825	21,600.00	11	58
2	RISING CITY	VILLAGE OF RISING CITY	1	9	1	34,000	10,200.00	10	60
3	SARGENT	CITY OF SARGENT	1	9	1	24,182	7,254.69	9	59
3	SCHUYLER	CITY OF SCHUYLER	2	9	1	76,060	20,712.00	9	59
1	SCOTTSBLUFF	CITY OF SCOTTSBLUFF	4	0	1	835,000	250,000.00	8	61

STATUS	LOCATION	NAME OF APPLICANT	POP CODE	DESCRIP TION	TYPE CONST	ESTIMATED ELIGIBLE COST OF PROJECT	FEDERAL GRANT OFFER	PROJECT APPROVED MONTH-YEAR
3	SEWARD	CITY OF SEWARD	2	5	1	273,589	75,000.00	8 58
2	SHELBY	VILLAGE OF SHELBY	1	9	1	13,925	4,177.64	9 60
3	SHELTON	VILLAGE OF SHELTON	1	1	3	48,452	13,437.00	9 57
1	SPRAGUE	VILLAGE OF SPRAGUE	1	9	1	24,119	7,235.70	8 61
3	SUPERIOR	CITY OF SUPERIOR	2	5	1	237,206	71,161.87	6 57
3	SUTHERLAND	VIL OF SUTHERLAND	1	7	1	23,254	6,976.43	12 57
1	TRENTON	VILLAGE OF TRENTON	1	1	1	47,066	14,119.80	9 61
3	ULYSSES	VILLAGE OF ULYSSES	1	7	1	14,609	4,382.68	9 59
3	UNADILLA	VILLAGE OF UNADILLA	1	9	1	12,740	3,822.20	9 57
1	UNION	VILLAGE OF UNION	1	9	1	32,700	9,810.00	8 61
3	UTICA	VILLAGE OF UTICA	1	9	1	12,206	3,662.06	12 57
1	VALPARAISO	VILL OF VALPARAISO	1	9	1	40,267	12,080.02	8 61
1	WAYNE	CITY OF WAYNE	2	9	1	166,640	49,992.00	8 61
3	WESTERN	VILLAGE OF WESTERN	1	5	1	35,113	9,323.70	10 59
2	WILBER	CITY OF WILBER	1	1	1	76,460	22,938.00	8 58
3	WILCOX	VILLAGE OF WILCOX	1	9	1	10,144	3,043.06	12 60
1	YORK	CITY OF YORK	3	1	2	279,400	83,820.00	3 61
	NEVADA							
2	BOULDER CITY	CITY OF BOULDER CITY	2	9	1	465,000	139,500.00	4 61
3	CARSON CITY	CITY OF CARSON CITY	2	9	4	500,313	149,000.00	11 58
3	CLARK	CLARK COUNTY	5	3	1	704,253	208,361.00	4 59
3	CLARK	CLARK COUNTY	7	3	1	132,045	39,610.00	3 60
2	ELKO	CITY OF ELKO	3	9	1	87,952	26,380.00	3 61
3	EUREKA	EUREKA CO SCHOOL DIST	1	3	2	6,371	1,910.00	8 61
3	HENDERSON	CITY OF HENDERSON	2	1	1	346,666	104,000.00	5 57
1	JACKPOT	TOWN OF JACKPOT	1	9	1	50,000	15,000.00	6 61
1	LAS VEGAS	CLARK COUNTY SAN DIST 2	2	3	1	827,500	248,250.00	9 61

3	LAS VEGAS	CITY OF LAS VEGAS	4	1	4	147,019	44,105.79	5	57
3	LAS VEGAS	CITY OF LAS VEGAS	4	7	4	495,787	148,730.00	5	59
3	LAS VEGAS	CLARK COUNTY SAN DIST 1	7	3	1	62,221	18,660.00	12	60
3	LAS VEGAS	CLARK COUNTY SAN DIST 1	7	3	2	75,373	22,610.00	2	61
1	LAS VEGAS	CLARK COUNTY SAN DIST 1	7	3	2	44,000	13,200.00	12	61
3	N LAS VEGAS	CITY OF NORTH LAS VEGAS	2	3	1	75,026	22,507.00	6	59
1	N LAS VEGAS	CITY OF N LAS VEGAS	4	3	2	140,550	42,160.00	8	61
2	RENO	CITY OF RENO	5	1	3	259,502	77,850.00	6	60
3	SPARKS	CITY OF SPARKS	3	3	1	474,587	142,376.24	8	58
2	WINNEMUCCA	CITY OF WINNEMUCCA	2	1	7	15,650	4,690.00	2	61
	NEW HAMPSHIRE								
2	DERRY	TOWN OF DERRY	3	4	1	24,000	7,200.00	5	61
3	DERRY	TOWN OF DERRY	3	9	1	548,323	164,496.84	6	57
3	DOVER	CITY OF DOVER	1	1	1	124,500	37,350.00	9	57
3	DOVER	CITY OF DOVER	4	7	1	880,290	250,000.00	3	58
1	DURHAM	UNIV OF NEW HAMPSHIRE	2	3	2	24,676	7,402.80	11	61
3	GOFFSTOWN	TOWN OF GOFFSTOWN	3	3	1	42,401	12,720.30	8	60
3	GOFFSTOWN	TOWN OF GOFFSTOWN	3	7	1	245,000	73,500.00	2	57
1	HAMPTON	TOWN OF HAMPTON	1	7	4	890,232	250,000.00	6	60
3	HILLSBORO CO	BOARD OF COMMISSIONERS	1	1	1	85,850	25,500.00	5	58
3	JAFFREY	TOWN OF JAFFREY	1	9	1	267,878	80,363.31	4	57
2	KEENE	CITY OF KEENE	4	3	1	712,000	213,600.00	1	59
1	LACONIA	CITY OF LACONIA	4	3	1	898,500	250,000.00	12	61
1	LACONIA	CITY OF LACONIA	4	3	1	836,333	250,000.00	6	61
2	NASHUA	CITY OF NASHUA	5	5	1	970,000	250,000.00	7	59
3	NEWBURY	TOWN OF NEWBURY	1	7	1	107,282	32,184.74	3	59
1	NEWBURY	TOWN OF NEWBURY	1	3	1	61,050	18,315.00	9	61
1	PLYMOUTH VILL	PLYMOUTH VILL FIRE DIST	1	9	1	54,000	16,200.00	11	61
2	PORTSMOUTH	CITY OF PORTSMOUTH	4	5	1	834,150	250,000.00	1	60
3	ROCKINGHAM CO	COUNTY COMMISSIONERS	1	7	1	64,581	19,374.35	11	57
1	SALEM	TOWN OF SALEM	3	5	1	878,000	250,000.00	6	61
3	UNITY	SULLIVAN COUNTY COMM	1	1	2	7,494	2,248.13	6	57

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	NEW JERSEY								
2	ASBURY PARK	CITY OF ASBURY PARK	4	3	1	48,958	14,687.33	10	59
3	AVALON	AVALON SEWERAGE AUTH	1	1	1	455,714	135,000.00	7	57
3	BERGEN COUNTY	BD OF CHOSEN FREEHOLDER	1	1	7	90,068	26,933.01	9	57
2	BERKELEY HTS	TWP OF BERKELEY HEIGHTS	3	3	1	300,000	90,000.00	10	59
1	BEVERLY	BEVERLY SEWERAGE AUTH	4	1	2	58,000	17,400.00	7	61
3	BURLINGTON	CITY OF BURLINGTON	4	1	6	546,187	163,856.09	3	57
3	CALDWELL	BOROUGH OF CALDWELL	3	1	3	472,395	138,000.00	3	57
2	CARNEYS POINT	UPPER PENNS NECK TWP SA	3	5	1	512,000	153,600.00	11	60
3	CEDAR GROVE	TOWNSHIP OF CEDAR GROVE	3	1	2	488,343	146,502.94	8	58
3	EWING LAWRENCE	EWING LAWRENCE SEW AUTH	2	3	1	260,100	78,030.00	9	59
3	FLORENCE	TOWNSHIP OF FLORENCE	3	1	3	371,843	111,552.92	8	57
2	FRANKLIN TWP	FRANKLIN TOWNSHIP S AUT	3	3	1	593,000	177,900.00	8	60
2	FREEHOLD	BOROUGH OF FREEHOLD	3	1	2	390,000	117,000.00	8	58
2	GLASSBORO	BOROUGH OF GLASSBORO	3	1	7	540,000	162,000.00	9	59
2	GREEN BROOK	JT MEET PLAINFLD ET AL	6	3	2	190,000	57,000.00	8	61
1	GUTTENBERG	TOWN OF GUTTENBERG	3	3	2	81,565	24,469.50	11	61
2	HANOVER	TOWNSHIP OF HANOVER	2	7	1	1,058,974	250,000.00	9	60
2	HIGHTSTOWN	BOROUGH OF HIGHTSTOWN	2	1	3	224,000	67,200.00	3	60
2	KEYPORT	BOROUGH OF KEYPORT	3	1	7	362,000	108,600.00	10	60
3	LOWER PENN NK	LOWER PENNS NECK S A	3	5	1	596,197	178,859.24	11	59
1	MADISON	BOROUGH OF MADISON	4	3	2	574,000	172,200.00	8	61
1	MATAWAN	BOROUGH OF MATAWAN	3	1	1	381,112	114,333.60	12	61
3	MILLVILLE	CITY OF MILLVILLE	4	1	6	544,653	163,200.00	3	57
2	MOONACHIE	BOROUGH OF MOONACHIE	2	3	2	414,985	124,495.50	8	61
1	MOUNT HOLLY	MOUNT HOLLY SEW AUTH	3	1	7	610,000	183,000.00	10	60
3	N WILDWOOD	CITY OF NORTH WILDWOOD	2	2	2	18,811	5,643.18	8	60
3	N WILDWOOD	CITY OF NORTH WILDWOOD	2	1	3	280,320	84,096.04	6	57
2	NEW PROVIDENCE	BOROUGH NEW PROVIDENCE	2	4	7	70,000	21,000.00	8	60
3	NO BRUNSWICK	TOWNSHIP OF N BRUNSWICK	3	3	1	910,900	250,000.00	9	58

2	NORTH CALDWELL	BOR OF NORTH CALDWELL	1	3	1	105,000	31,500.00	11	60
2	NORTH BERGEN	TWP OF NORTH BERGEN	5	5	1	855,000	250,000.00	12	57
3	PASSAIC	TOWNSHIP OF PASSARC	2	1	4	367,009	104,400.00	8	58
3	PLAINFIELD	CITY OF PLAINFIELD	5	3	1	1,469,587	250,000.00	3	57
3	RAHWAY	RAHWAY VALLEY S A	6	2	1	1,742,715	250,000.00	9	58
3	RIDGEWOOD	VILLAGE OF RIDGEWOOD	4	1	4	1,600,000	250,000.00	7	57
2	SECAUCUS	TOWN OF SECAUCUS	3	1	1	861,500	250,000.00	9	59
3	SHIP BOTTOM	SHIP BOTTOM SEWERAGE AU	1	6	1	320,876	96,262.90	3	57
3	SOMERVILLE	SOMERSET RARITAN VAL SA	4	7	1	1,283,131	250,000.00	11	57
3	SPRINGFIELD	TOWNSHIP OF SPRINGFIELD	3	3	1	279,204	79,200.00	12	59
1	TOTOWA	BOROUGH OF TOTOWA	4	1	1	939,700	250,000.00	9	61
3	TRENTON	CITY OF TRENTON	7	1	2	4,434,085	250,000.00	7	57
1	WAYNE	TOWNSHIP OF WAYNE	4	7	1	1,391,540	200,000.00	11	60
2	WEST CALDWELL	BOR OF WEST CALDWELL	2	3	1	255,000	76,500.00	11	60
2	WEST PATERSON	BOROUGH OF W PATERSON	2	1	7	328,000	98,400.00	2	60
3	WILDWOOD CREST	BOR OF WILDWOOD CREST	1	1	1	577,355	173,206.43	8	58
1	WILDWOOD	CITY OF WILDWOOD	2	4	2	77,050	23,115.00	10	61
3	WILLIAMSTOWN	MONROE MUN UTIL AUTH	3	5	1	300,000	90,000.00	2	60
2	WOODBRIDGE	TOWNSHIP OF WOODBRIDGE	5	3	1	920,130	250,000.00	9	61
	NEW MEXICO								
1	ALAMOGORDO	CITY OF ALAMOGORDO	3	3	1	47,713	14,313.90	11	60
3	ALAMOGORDO	CITY OF ALAMOGORDO	3	1	2	314,833	90,000.00	12	57
2	ALBUQUERQUE	CITY OF ALBUQUERQUE	6	3	1	1,344,200	250,000.00	11	59
2	ALBUQUERQUE	CITY OF ALBUQUERQUE	6	1	1	2,668,534	240,000.00	1	60
3	ALBUQUERQUE	CITY OF ALBUQUERQUE	6	1	2	1,091,580	250,000.00	2	57
3	ALBUQUERQUE	CITY OF ALBUQUERQUE	6	4	5	129,988	16,000.00	12	57
1	ALBUQUERQUE	CITY OF ALBUQUERQUE	7	3	2	912,180	250,000.00	12	61
1	ALBUQUERQUE	CITY OF ALBUQUERQUE	7	3	2	952,000	250,000.00	11	61
3	ARTESIA	CITY OF ARTESIA	3	1	4	300,000	90,000.00	12	59
3	AZTEC	TOWN OF AZTEC	1	5	1	259,646	63,429.00	3	57
3	BAYARD	VILLAGE OF BAYARD	1	6	1	120,155	33,000.00	12	57
2	BELEN	TOWN OF BELEN	2	1	6	181,525	54,457.50	1	61

STATUS	LOCATION	NAME OF APPLICANT	POP CODE	DESCRIPTION	TYPE CONST	ESTIMATED ELIGIBLE COST OF PROJECT	FEDERAL GRANT OFFER	PROJECT APPROVED MONTH-YEAR
3	BLOOMFIELD	VILLAGE OF BLOOMFIELD	1	5	1	119,314	35,794.15	12 58
1	CAPITAN	VILLAGE OF CAPITAN	1	5	1	46,023	12,712.82	1 59
3	CARLSBAD	CITY OF CARLSBAD	4	1	4	522,571	156,681.34	12 57
3	CARRIZOZO	TOWN OF CARRIZOZO	1	6	1	52,814	15,844.13	4 57
3	CLOUDCROFT	VILLAGE OF CLOUDCROFT	1	6	1	88,636	25,000.00	3 58
3	CLOVIS	CITY OF CLOVIS	4	1	2	143,584	43,075.33	1 60
3	DEMING	VILLAGE OF DEMING	3	3	1	144,060	43,218.06	2 61
2	EL RITO	NO NEW MEXICO COLLEGE	1	9	1	25,958	7,787.51	6 61
3	ESPANOLA	VILLAGE OF ESPANOLA	1	3	1	58,913	17,673.87	7 57
3	EUNICE	CITY OF EUNICE	1	7	4	129,000	38,700.00	1 59
2	FARMINGTON	TOWN OF FARMINGTON	2	5	1	833,333	245,000.00	12 58
3	FARMINGTON	TOWN OF FARMINGTON	2	3	1	56,237	16,871.14	5 57
3	FORT SUMNER	VILLAGE OF FORT SUMNER	1	1	1	115,759	26,022.00	2 57
3	GALLUP	TOWN OF GALLUP	1	1	2	118,808	35,642.51	12 58
3	GALLUP	TOWN OF GALLUP	3	5	4	220,687	60,157.69	4 57
2	GLORIETA	VILLAGE OF GLORIETA	1	9	1	11,171	3,351.20	4 60
3	GRANTS	TOWN OF GRANTS	1	6	1	253,770	69,900.00	3 57
3	HOBBS	CITY OF HOBBS	4	1	7	75,267	22,580.18	12 58
3	LAS CRUCES	CITY OF LAS CRUCES	4	7	1	252,253	56,772.00	4 57
3	LAS CRUCES	CITY OF LAS CRUCES	4	7	4	181,533	54,459.99	12 58
1	LAS CRUCES	CITY OF LAS CRUCES	5	7	2	640,000	192,000.00	10 61
2	LAS VEGAS	TOWN OF LAS VEGAS	3	1	7	129,245	38,773.50	11 60
1	LOS LUNAS	VILLAGE OF LOS LUNAS	1	5	1	125,553	37,665.96	11 59
3	LOVINGTON	CITY OF LOVINGTON	2	5	1	438,929	110,000.00	12 57
3	MILAN	VILLAGE OF MILAN	1	3	1	160,721	48,216.32	2 58
1	MORIARTY	VILLAGE OF MORIARTY	1	7	1	104,906	31,471.00	12 60
3	ROSWELL	CITY OF ROSWELL	5	3	1	77,787	22,887.15	5 57
2	ROSWELL	CITY OF ROSWELL	5	7	2	279,000	83,500.00	2 60
3	RUIDOSO	VILLAGE OF RUIDOSO	1	5	1	392,089	117,626.84	12 57
2	SANTA FE	CITY OF SANTA FE	5	3	1	287,279	86,183.78	11 60
3	SANTA ROSA	TOWN OF SANTA ROSA	1	5	1	126,698	36,134.30	12 58
2	SANTA FE	CITY OF SANTA FE	5	1	6	750,530	225,159.00	11 60

3	SANTA FE	CITY OF SANTA FE	5	2	1	18,364	4,514.15	2	57
3	SILVER CITY	TOWN OF SILVER CITY	3	7	1	196,596	58,978.76	12	57
1	SPRINGER	NEW MEXICO BOYS SCHOOL	1	3	2	33,428	10,028.31	12	61
1	TAOS	TOWN OF TAOS	1	7	7	75,264	22,579.20	10	61
2	TULAROSA	VILLAGE OF TULAROSA	1	7	2	122,142	36,642.60	2	61
3	UNIVERSITY PK	NEW MEXICO STATE UNIV	2	3	1	27,339	8,201.72	12	59
	NEW YORK								
2	ALBION	VILLAGE OF ALBION	2	1	3	111,300	33,390.00	6	59
2	ALDEN	VILLAGE OF ALDEN	1	6	4	182,935	54,880.49	5	58
3	ALFRED	VILLAGE OF ALFRED	1	7	4	278,105	83,431.00	7	57
3	ALTAMONT	VILLAGE OF ALTAMONT	1	1	4	165,446	49,633.78	3	57
1	AMHERST	TOWN BD OF AMHERST	6	5	5	2,023,450	250,000.00	12	61
3	BALDWINSVILLE	VILL OF BALDWINSVILLE	2	1	2	197,080	59,124.11	12	58
1	BEACON	CITY OF BEACON	4	3	1	367,987	110,396.00	12	61
1	BEACON	CITY OF BEACON	4	7	1	1,126,300	250,000.00	4	59
3	BETHLEHEM	DELMAR ELSMERE	4	1	2	235,537	70,660.98	2	57
3	BINGHAMTON	CITY OF BINGHAMTON	6	1	1	2,248,085	250,000.00	3	57
2	BOLTON LANDNG	TOWN OF BOLTON LANDING	1	5	1	356,723	107,017.02	4	59
1	BRASHER FALLS	TOWN OF BRASHER	1	7	1	154,215	46,264.50	3	61
1	BRIGHTON	TOWN OF BRIGHTON S D 2	1	3	2	172,000	51,600.00	12	61
1	BRIGHTON	TOWN OF BRIGHTON S D 2	4	1	2	140,000	42,000.00	12	61
2	BRIGHTON	TOWN OF BRIGHTON	4	3	1	486,170	145,851.09	4	58
1	CAYUGA HEIGHTS	VILL OF CAYUGA HEIGHTS	2	1	2	125,000	37,500.00	11	61
1	CANAJOHARIE	VILLAGE OF CANAJOHARIE	2	1	2	743,750	223,125.00	4	61
1	CANANDAIGUA	CITY OF CANANDAIGUA	3	7	4	1,064,000	250,000.00	9	60
1	CHAMPLAIN	VILLAGE OF CHAMPLAIN	1	7	1	356,794	107,038.20	12	61
1	CLINTON	VILLAGE OF CLINTON	1	1	3	99,000	29,700.00	11	61
2	COLONIE	COUNTY OF ALBANY	1	1	1	174,000	52,200.00	2	61
3	CONEY ISLAND	CITY OF NEW YORK	9		2	9,520,000	250,000.00	8	57
3	CORTLAND	CITY OF CORTLAND	4	3	1	282,694	84,808.19	9	59
1	DANNEMORA	VILLAGE OF DANNEMORA	1	5	5	191,235	57,370.00	12	61

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2	DUNKIRK	CITY OF DUNKIRK	4	3	1	29,000	8,700.00	2 59
1	E ROCHESTER	VILL OF EAST ROCHESTER	3	1	2	829,000	248,700.00	12 61
3	EAST GREENBUSH	E GREENBUSH GEN SEW DIS	3	1	2	52,144	15,643.20	5 57
1	ENDICOTT	VILLAGE OF ENDICOTT	4	7	1	3,461,200	250,000.00	7 60
1	ERIE COUNTY	ERIE COUNTY SEW AGENCY	3	3	1	1,029,270	250,000.00	11 59
2	FAIRPORT	VILLAGE OF FAIRPORT	3	1	7	156,387	46,916.00	2 61
2	FARMINGTON	TOWN OF FARMINGTON	1	3	1	133,700	40,110.00	9 61
2	FREDONIA	VILLAGE OF FREDONIA	3	1	4	484,434	145,330.34	6 59
3	FREDONIA	VILLAGE OF FREDONIA	3	3	1	22,860	6,858.03	6 59
3	FREEPORT	VILLAGE OF FREEPORT	4	1	2	900,000	250,000.00	12 57
1	FULTON	CITY OF FULTON	4	5	1	906,400	250,000.00	11 61
2	GEDDES	TOWN OF GEDDES	3	7	1	225,740	67,722.00	9 60
3	GENESEO	VILLAGE OF GENESEO	2	6	1	319,614	95,884.06	5 57
3	GENEVA	CITY OF GENEVA	4	3	1	79,267	22,890.00	10 57
2	GOSHEN	VILLAGE OF GOSHEN	2	1	2	131,760	39,528.00	5 59
2	GOWANDA	CITY OF GOWANDA	2	7	1	331,146	99,343.95	9 57
1	GRAND ISLAND	GRAND ISLAND SEWER DIST	1	5	1	879,397	250,000.00	11 61
2	GREAT NECK	GREAT NECK SEWER DIST	3	1	3	975,000	250,000.00	8 59
1	GREECE	TOWN OF GREECE	5	1	2	104,490	31,347.00	12 61
3	GREENPORT	TOWN OF GREENPORT SD 1	1	5	1	244,438	70,556.33	9 57
1	GROTON	VILLAGE OF GROTON	2	7	1	546,459	163,937.00	10 61
1	HAMBURG	TOWN OF HAMBURG	3	1	1	1,000,871	250,000.00	7 61
1	HAMLIN	TOWN OF HAMLIN	1	5	1	275,000	82,500.00	1 60
2	HENRIETTA	TOWN OF HENRIETTA	2	7	1	373,533	112,059.90	8 58
2	HIGHLAND FALLS	VILLAGE HIGHLAND FALLS	2	1	7	157,170	47,151.00	9 59
2	HONEOYE FALLS	VILLAGE OF HONEOYE FALL	1	1	2	200,000	60,000.00	3 60
2	IRONDEQUOIT	TOWN OF IRONDEQUOIT	5	5	1	595,170	178,550.94	7 58
3	IRVINGTON	VILLAGE OF IRVINGTON	2	3	1	36,240	10,600.00	3 57
3	ITHACA	CITY OF ITHACA	5	7	4	992,344	250,000.00	3 58
2	JAMAICA BAY	CITY OF NEW YORK	9	6	4	14,610,430	250,000.00	10 60
3	JAMESTOWN	CITY OF JAMESTOWN	5	8	1	304,132	91,239.67	3 58
1	JOHNSON CITY	VILLAGE OF JOHNSON CITY	4	7	1	3,371,000	250,000.00	5 61

1	KINGSTON	CITY OF KINGSTON	5	1	2	340,900	102,270.00	7	61
2	LEROY	VILLAGE OF LEROY	2	7	1	946,000	250,000.00	9	60
2	LEWISTON	VILLAGE OF LEWISTON	1	1	1	212,500	63,750.00	7	57
2	LIBERTY	VILLAGE OF LIBERTY	2	1	7	71,300	21,390.00	8	59
1	LLOYD	TOWN OF LLOYD SEW DIST	2	1	7	127,515	38,254.00	10	60
1	MADRID	MADRID SAN SEWER DIST 1	1	7	1	96,809	29,042.62	5	61
3	MALONE	VILLAGE OF MALONE	3	1	2	303,100	90,930.00	2	58
3	MANCHESTER	VILLAGE OF MANCHESTER	1	1	2	10,877	3,263.19	8	58
3	MARCELLUS	VILLAGE OF MARCELLUS	1	7	4	94,698	28,409.50	9	58
3	MASSENA	VILLAGE OF MASSENA	4	7	1	1,349,000	250,000.00	6	57
3	MAYVILLE	VILLAGE OF MAYVILLE	1	7	1	323,909	97,172.94	6	57
1	MINOA	VILLAGE OF MINOA	1	7	4	200,000	60,000.00	1	61
3	MONROE COUNTY	MONROE CO SEWER AGENCY	4	1	1	1,054,300	250,000.00	10	58
3	MONROE COUNTY	COUNTY OF MONROE	8	3	1	70,485	21,145.39	4	59
2	MONTOUR FALLS	VILLAGE MONTOUR FALLS	1	1	1	229,823	68,946.90	7	60
1	N SYRACUSE	CENTRAL SCHOOL DIST 3	5	1	2	25,710	7,713.00	12	61
3	NASSAU CO	NASSAU COUNTY SD 1	4	5	1	1,281,960	250,000.00	2	60
3	NEW PALTZ	VILLAGE OF NEW PALTZ	1	7	1	254,556	76,366.86	6	57
1	NEW WINDSOR	TOWN OF NEW WINDSOR	4	7	5	125,000	37,500.00	11	61
2	NEW YORK	CITY OF NEW YORK	9	1	2	6,633,250	250,000.00	12	61
3	NEWARK	VILLAGE OF NEWARK	4	1	2	6,738	2,021.25	12	57
1	NEWBURGH	CITY OF NEWBURGH	5	5	1	2,760,000	250,000.00	8	59
2	NEWTOWN CREEK	CITY OF NEW YORK	9	3	1	5,500,000	250,000.00	10	59
1	NORWICH	CITY OF NORWICH	3	7	1	580,000	174,000.00	12	60
2	ONONDAGA CO	ONONDAGA PUBLIC WKS COM	2	4	1	786,066	235,819.80	2	61
3	ONONDAGA CO	ONONDAGA PUBLIC WKS COM	8	1	1	160,190	48,057.13	8	58
3	ONONDAGA CO	ONONDAGA PUBLIC WKS COM	8	1	1	2,556,000	250,000.00	3	57
3	ORANGETOWN	TOWN OF ORANGETOWN	2	6	1	573,420	160,755.00	9	58
1	OWEGO	VILLAGE OF OWEGO	3	5	1	604,300	181,290.00	12	61
1	OYSTER BAY	OYSTER BAY SEWER DIST	3	1	2	750,000	225,000.00	8	61
3	PAINTED POST	VILLAGE OF PAINTED POST	1	1	2	318,016	95,404.95	4	58
2	PALMYRA	VILLAGE OF PALMYRA	2	4	1	344,493	103,347.90	12	59
1	PAWLING	VILLAGE OF PAWLING	1	6	4	101,359	30,407.70	5	57
2	PEEKSKILL	CITY OF PEEKSKILL	4	3	1	550,000	165,000.00	3	60

STATUS	LOCATION	NAME OF APPLICANT	POP CODE	DESCRIPTION	TYPE CONST	ESTIMATED ELIGIBLE COST OF PROJECT	FEDERAL GRANT OFFER	PROJECT APPROVED MONTH-YEAR
1	PENFIELD	TOWN OF PENFIELD	1	5	1	666,050	199,815.00	3 60
1	PENN YAN	VILLAGE OF PENN YAN	3	1	2	260,214	78,064.00	11 61
1	PHOENIX	VILLAGE OF PHOENIX	1	1	1	239,499	71,849.70	12 61
1	PIERMONT	VILLAGE OF PIERMONT	1	7	1	215,100	64,530.00	5 58
3	PITTSFORD	TOWN OF PITTSFORD	1	7	1	191,142	57,342.61	2 58
1	PLATTSBURGH	CITY OF PLATTSBURGH	4	1	2	14,260	4,278.00	8 61
1	PLATTSBURGH	CITY OF PLATTSBURGH	4	7	2	60,875	18,262.50	8 61
1	PORT CHESTER	VILLAGE OF PORT CHESTER	4	1	3	878,000	250,000.00	8 58
3	POUGHKEEPSIE	ARLINGTON SEWER DIST	5	5	1	762,716	228,814.80	3 57
3	POUGHKEEPSIE	CITY OF POUGHKEEPSIE	5	1	1	1,425,000	250,000.00	3 57
1	RHINEBECK	VILLAGE OF RHINEBECK	1	7	1	253,660	76,098.00	10 61
3	RICHMONDVILLE	VILLAGE OF RICHMONDVL	1	7	1	83,133	24,940.07	5 57
2	RICKERS ISLAND	CITY OF NEW YORK	9	3	1	340,000	102,000.00	10 60
3	RIVERHEAD	TOWN OF RIVERHEAD	2	1	3	250,369	75,110.71	8 58
2	ROCHESTER	CITY OF ROCHESTER	8	3	4	858,200	250,000.00	4 60
3	ROCHESTER	CITY OF ROCHESTER	8	1	7	1,075,000	250,000.00	8 57
2	ROCHESTER	CITY OF ROCHESTER	8	4	1	1,231,950	250,000.00	8 58
3	ROCHESTER	CITY OF ROCHESTER	8	4	1	595,680	178,704.00	3 57
3	ROCKAWAY	CITY OF NEW YORK	9	1	2	4,203,070	250,000.00	9 58
3	ROUSES POINT	VILLAGE OF ROUSES POINT	1	5	1	426,860	128,058.00	4 57
1	RYE	COUNTY OF WESTCHESTER	9	1	7	2,875,000	250,000.00	2 61
2	SHERRILL	CITY OF SHERRILL	1	1	1	314,704	94,411.20	12 59
2	SKANEATELES	CITY OF SYRACUSE	1	1	4	174,400	52,320.00	1 59
2	SOUTHAMPTON	TOWN OF SOUTHAMPTON	2	1	1	24,500	7,350.00	6 57
2	SPENCERPORT	VILLAGE OF SPENCERPORT	1	1	5	120,000	36,000.00	1 60
2	SPRINGVILLE	VILLAGE OF SPRINGVILLE	2	1	1	305,000	91,500.00	8 58
2	SPRING VALLEY	VILL OF SPRING VALLEY	2	1	2	322,500	96,750.00	8 58
1	STONY POINT	TOWN OF STONY POINT	2	7	1	928,800	250,000.00	11 61
3	SUFFERN	VILLAGE OF SUFFERN	2	1	6	614,671	184,158.07	3 57
1	SWEDEN	SWEDEN SAN SEWER DIST 1	1	5	1	242,760	72,828.00	8 61
1	THOMPSON	MELODY LAKE SEWER DIST	1	6	1	41,500	12,450.00	11 61
2	TUPPER LAKE	VILLAGE OF TUPPER LAKE	3	7	1	913,996	250,000.00	1 60

2	UNION SPRINGS	VILLAGE OF UNION SPRING	1	5	1	209,000	62,700.00	1	60
2	UNION	TOWN OF UNION	6	3	1	108,600	32,580.00	2	61
3	VESTAL	TOWN OF VESTAL	3	7	1	438,498	131,549.51	4	58
2	WALDEN	VILLAGE OF WALDEN	2	5	4	64,098	19,229.40	5	59
3	WAP NGER FALLS	VIL OF WAPPINGERS FALLS	2	1	1	157,676	46,402.86	12	57
1	WARWICK	VILLAGE OF WARWICK	2	7	1	248,606	74,581.80	12	60
1	WATERVILLE	VILLAGE OF WATERVILLE	1	1	1	378,000	113,400.00	4	61
3	WAYNE COUNTY	COUNTY HOME INFIRMARY	1	1	1	25,029	7,508.74	1	60
1	WEBB	TOWN OF WEBB	1	7	1	339,888	101,966.25	5	59
2	WEBSTER	VILLAGE OF WEBSTER	1	2	1	568,000	170,400.00	11	60
3	WEBSTER	VILLAGE OF WEBSTER	1	1	2	192,362	53,550.00	5	57
1	WEBSTER	WEST WEBSTER S D 1	2	5	1	99,000	29,700.00	8	61
3	WEST SENECA	TOWN WEST SENECA SD13	4	3	1	929,152	250,000.00	2	59
2	WESTCHESTER CO	COUNTY OF WESTCHESTER	8	1	1	4,840,641	250,000.00	9	58
3	WILSON	VILLAGE OF WILSON	1	1	1	118,739	35,621.73	12	58
2	YORKTOWN HGHTS	TOWN BOARD OF YORKTOWN	3	7	1	1,296,875	250,000.00	11	61
	NORTH CAROLINA								
2	ALBEMARLE	CITY OF ALBEMARLE	4	1	7	1,734,225	250,000.00	9	59
2	ASHEBORO	TOWN OF ASHEBORO	3	7	1	1,033,377	200,000.00	9	60
3	AYDEN	TOWN OF AYDEN	1	5	1	271,369	81,410.95	3	57
1	BESSEMER CITY	TOWN OF BESSEMER CITY	2	7	1	224,660	67,398.00	10	61
3	BURLINGTON	CITY OF BURLINGTON	4	1	1	459,189	45,926.00	11	59
3	CHINA GROVE	TOWN OF CHINA GROVE	1	6	1	302,898	90,019.00	9	58
1	CLINTON	CITY OF CLINTON	3	7	1	668,000	200,400.00	10	61
2	CONCORD	CITY OF CONCORD	4	1	1	351,599	50,000.00	12	60
3	DENTON	TOWN OF DENTON	1	1	2	89,758	25,800.00	10	57
3	ELKIN	TOWN OF ELKIN	2	7	1	405,706	119,400.00	9	57
1	ELLERBE	TOWN OF ELLERBE	1	6	1	100,000	30,000.00	5	60
3	FARMVILLE	TOWN OF FARMVILLE	1	6	1	332,218	99,665.53	12	56
3	FAYETTEVILLE	CITY OF FAYETTEVILLE	5	1	1	2,086,239	250,000.00	2	57
3	FOREST CITY	TOWN OF FOREST CITY	2	6	1	612,232	183,669.60	9	58
1	FUQUAY	TOWN OF FUQUAY	2	5	1	500,000	150,000.00	8	61

STATUS	LOCATION	NAME OF APPLICANT	POP CODE	DESCRIP TION	TYPE CONST	ESTIMATED ELIGIBLE COST OF PROJECT	FEDERAL GRANT OFFER	PROJECT APPROVED MONTH-YEAR
3	GASTONIA	CITY OF GASTONIA	4	1	1	1,619,007	250,000.00	11 57
3	GIBSONVILLE	CITY OF GIBSONVILLE	1	1	2	121,800	36,540.00	2 57
2	GRAHAM	TOWN OF GRAHAM	3	1	1	649,459	175,000.00	9 60
2	GREENVILLE	CITY OF GREENVILLE	4	7	1	1,190,765	250,000.00	7 59
3	GREENSBORO	CITY OF GREENSBORO	6	1	7	1,131,966	184,104.00	5 57
1	GRIFTON	TOWN OF GRIFTON	1	5	1	111,400	33,420.00	8 61
2	HAMLET	CITY OF HAMLET	3	7	1	277,155	83,146.00	9 60
2	HAW RIVER	HAW RIVER SAN DIST	1	7	1	438,550	131,565.00	7 59
1	HENDERSON	CITY OF HENDERSON	4	7	5	902,280	250,000.00	10 61
3	HICKORY	CITY OF HICKORY	4	1	1	287,632	86,289.77	1 58
3	HIGH POINT	CITY OF HIGH POINT	5	2	4	594,930	177,891.00	10 58
3	HUNTERSVILLE	TOWN OF HUNTERSVILLE	1	7	1	78,362	23,508.61	9 58
3	JONESVILLE	TOWN OF JONESVILLE	1	7	1	163,976	36,600.00	9 57
2	KERNERSVILLE	TOWN OF KERNERSVILLE	1	7	4	301,955	90,586.00	9 59
1	LILLINGTON	TOWN OF LILLINGTON	1	7	1	275,000	70,000.00	9 60
3	LITTLETON	TOWN OF LITTLETON	1	6	1	155,907	46,772.26	2 57
3	LOUISBURG	TOWN OF LOUISBURG	2	5	1	243,742	73,122.61	2 57
3	MADISON	TOWN OF MADISON	1	5	1	227,271	68,181.40	7 59
1	MAYODAN	TOWN OF MAYODAN	1	1	2	173,500	52,050.00	8 61
3	MOCKSVILLE	CITY OF MOCKSVILLE	1	6	1	192,309	57,692.74	3 57
2	MOUNT GILEAD	TOWN OF MOUNT GILEAD	1	7	1	261,490	78,447.00	9 59
3	MOUNT OLIVE	CITY OF MOUNT OLIVE	2	1	1	171,322	48,829.00	2 57
3	MOUNT AIRY	TOWN OF MOUNT AIRY	3	1	1	1,370,406	250,000.00	7 58
3	MT PLEASANT	TOWN OF MT PLEASANT	1	1	3	56,554	16,966.23	9 60
1	MURFREESBORO	TOWN OF MURFREESBORO	1	9	1	105,810	31,734.00	5 60
1	N ASHEBORO	CENTRAL FALLS S D	2	3	1	163,500	49,050.00	11 60
3	N WILKESBORO	TOWN OF N WILKESBORO	1	7	1	393,549	112,710.00	1 57
1	NEW BERN	CITY OF NEW BERN	4	7	1	1,193,500	250,000.00	10 61
3	NORWOOD	TOWN OF NORWOOD	1	6	1	149,200	44,097.00	11 57
3	PARKTON	TOWN OF PARKTON	1	1	1	77,067	22,500.00	10 57
3	PILOT MOUNTAIN	TOWN OF PILOT MOUNTAIN	1	1	3	78,626	23,205.00	9 57

2	PINETOPS	TOWN OF PINETOPS	1	7	1	152,259	40,759.00	9	58
2	RAMSEUR	TOWN OF RAMSEUR	1	7	1	233,395	70,000.00	9	60
1	RAEFORD	TOWN OF RAEFORD	2	1	1	450,000	100,000.00	9	60
3	RED SPRINGS	TOWN OF RED SPRINGS	1	7	1	166,849	46,848.00	12	57
2	ROBERSONVILLE	TOWN OF ROBERSONVILLE	1	1	1	220,180	50,028.00	5	59
1	ROCKINGHAM	TOWN OF ROCKINGHAM	2	7	1	1,054,157	220,000.00	10	60
3	ROCKY MOUNT	CITY OF ROCKY MOUNT	5	1	7	534,677	160,403.16	2	57
1	ROYAL OAKS	ROYAL OAKS SAN DIST	2	3	1	154,378	46,313.00	7	60
3	RURAL HALL	RURAL HALL SAN DIST	1	2	1	93,973	28,192.02	10	58
2	SELMA	TOWN OF SELMA	2	7	1	392,710	112,500.00	9	59
2	SMITHFIELD	TOWN OF SMITHFIELD	3	7	1	800,000	200,000.00	9	60
3	SPENCER	TOWN OF SPENCER	2	7	1	335,748	100,798.46	12	57
3	SPRING HOPE	TOWN OF SPRING HOPE	1	7	1	108,013	30,148.00	12	57
3	STAR	TOWN OF STAR	1	1	4	78,734	23,115.00	7	58
3	STATESVILLE	CITY OF STATESVILLE	4	1	2	740,658	222,197.58	10	57
3	TARBORO	TOWN OF TARBORO	3	7	1	610,955	182,579.00	7	58
3	TROY	TOWN OF TROY	1	9	1	167,599	38,190.00	9	59
3	WADESBORO	TOWN OF WADESBORO	2	6	1	285,819	85,745.86	2	57
1	WEAVERVILLE	TOWN OF WEAVERVILLE	1	7	1	158,500	40,000.00	9	60
2	WELDON	TOWN OF WELDON	1	5	1	347,000	104,100.00	9	59
2	WHITE LAKE	TOWN OF WHITE LAKE	1	9	1	65,000	19,500.00	7	61
3	WILSON	CITY OF WILSON	4	1	1	983,686	250,000.00	9	57
1	WINDSOR	TOWN OF WINDSOR	1	7	1	243,485	73,045.00	10	61
3	WINSTON SALEM	CITY OF WINSTON SALEM	6	8	1	545,569	161,535.00	8	58
1	YANCEYVILLE	YANCEYVILLE SAN DIST	1	1	1	60,000	18,000.00	9	61
	NORTH DAKOTA								
3	ANAMOOSE	CITY OF ANAMOOSE	1	9	1	32,896	9,868.83	2	60
3	ANETA	CITY OF ANETA	1	9	1	49,000	14,700.00	8	60
3	ARTHUR	VILLAGE OF ARTHUR	1	9	1	33,073	9,921.84	3	60
3	ASHLEY	CITY OF ASHLEY	1	9	1	9,937	2,981.22	4	58
2	BALTA	VILLAGE OF BALTA	1	9	1	25,395	7,044.69	1	61
3	BERTHOLD	CITY OF BERTHOLD	1	9	1	19,841	5,952.56	2	58

STATUS	LOCATION	NAME OF APPLICANT	POP CODE	DESCRIP TION	TYPE CONST	ESTIMATED ELIGIBLE COST OF PROJECT	FEDERAL GRANT OFFER	PROJECT APPROVED MONTH-YEAR
1	BEULAH	CITY OF BEULAH	1	9	1	72,500	21,750.00	12 60
2	BISMARCK	CITY OF BISMARCK	5	3	1	65,000	19,500.00	12 60
3	BOWBELLS	CITY OF BOWBELLS	1	9	1	33,193	9,958.12	2 58
1	BUFFALO	VILLAGE OF BUFFALO	1	9	1	30,681	9,204.36	6 60
3	CARPIO	TOWN OF CARPIO	1	9	1	22,813	6,844.13	2 59
2	CARRINGTON	CITY OF CARRINGTON	1	9	1	56,837	17,051.21	1 61
3	CASSELTON	CITY OF CASSELTON	1	9	1	69,596	20,878.69	12 58
1	COLEHARBOR	CITY OF COLEHARBOR	1	9	1	11,000	3,300.00	6 59
1	COOPERSTOWN	CITY OF COOPERSTOWN	1	9	1	34,452	10,335.64	8 61
3	CRYSTAL	CITY OF CRYSTAL	1	9	1	32,061	9,618.39	1 58
3	DEVILS LAKE	CITY OF DEVILS LAKE	3	9	1	19,385	5,815.58	1 58
3	DEVILS LAKE	CITY OF DEVILS LAKE	3	3	1	24,358	7,307.45	7 57
3	DICKINSON	CITY OF DICKINSON	3	9	1	205,713	61,713.97	2 57
3	DODGE	VILLAGE OF DODGE	1	9	1	6,751	2,025.43	4 57
3	DRAKE	CITY OF DRAKE	1	9	1	33,303	9,990.94	7 58
3	EDGELEY	CITY OF EDGELEY	1	9	1	37,029	11,108.56	10 59
3	EDMORE	CITY OF EDMORE	1	9	1	28,274	8,482.36	12 57
1	EMERADO	VILLAGE OF EMERADO	1	9	1	31,865	9,559.50	3 58
3	ENDERLIN	TOWN OF ENDERLIN	1	9	1	41,886	12,565.80	4 59
3	FAIRDALE	VILLAGE OF FAIRDALE	1	9	1	26,757	8,027.21	4 58
1	FARGO	CITY OF FARGO	5	1	2	676,500	202,950.00	6 61
2	FARGO	CITY OF FARGO	5	1	2	890,400	250,000.00	5 59
3	FORBES	VILLAGE OF FORBES	1	9	1	16,503	4,950.88	12 60
1	GLADSTONE	VILLAGE OF GLADSTONE	1	9	1	10,000	3,000.00	10 59
1	GLEN ULLIN	CITY OF GLEN ULLIN	1	9	1	36,840	11,052.00	8 61
3	GLENBURN	TOWN OF GLENBURN	1	9	1	11,225	3,367.59	1 57
1	GOODRICH	CITY OF GOODRICH	1	9	1	23,000	6,900.00	8 59
3	GRAFTON	N D STATE SCHOOL	1	3	1	18,748	5,624.40	3 59
3	GRAFTON	CITY OF GRAFTON	2	9	3	477,302	143,190.86	3 57
2	GRAND FORKS	CITY OF GRAND FORKS	5	9	1	1,463,096	250,000.00	4 59
2	GRAND FORKS	CITY OF GRAND FORKS	5	9	1	1,522,000	250,000.00	7 59

3	GRANVILLE	CITY OF GRANVILLE	1	9	1	12,171	3,651.30	1	57
3	GWINNER	VILLAGE OF GWINNER	1	9	1	17,610	5,283.01	3	59
3	HANKINSON	CITY OF HANKINSON	1	9	1	45,458	13,637.42	7	58
3	HANNAFORD	VILLAGE OF HANNAFORD	1	9	1	50,608	15,182.65	3	57
1	HARVEY	CITY OF HARVEY	1	9	1	55,000	16,500.00	3	60
3	HAZEN	CITY OF HAZEN	1	9	1	42,149	12,644.74	2	58
3	HEBRON	CITY OF HEBRON	1	9	1	17,380	5,214.00	1	60
3	HETTINGER	CITY OF HETTINGER	1	9	1	39,919	11,975.96	4	57
3	HILLSBORO	CITY OF HILLSBORO	1	9	1	72,074	21,622.29	1	58
3	HOOPLE	VILLAGE OF HOOPLE	1	9	1	36,983	11,095.04	11	57
3	HUNTER	VILLAGE OF HUNTER	1	9	1	44,627	13,388.00	1	59
3	JAMESTOWN	N D STATE HOSPITAL	1	9	1	206,836	62,050.99	2	58
3	JAMESTOWN	CITY OF JAMESTOWN	4	9	7	89,749	26,924.84	2	57
3	JAMESTOWN	CITY OF JAMESTOWN	4	3	1	98,000	29,400.00	4	60
1	KATHRYN	VILLAGE OF KATHRYN	1	9	1	28,835	8,650.61	6	60
3	KILLDEER	CITY OF KILLDEER	1	9	1	11,696	3,509.03	1	57
3	LANGDON	CITY OF LANGDON	1	9	1	33,407	10,022.18	6	59
3	LANSFORD	TOWN OF LANSFORD	1	9	1	26,245	7,873.57	3	57
3	LARIMORE	CITY OF LARIMORE	1	3	6	41,462	12,438.53	4	58
3	LEEDS	CITY OF LEEDS	1	9	1	35,039	10,511.75	12	57
3	LIDGERWOOD	CITY OF LIDGERWOOD	1	9	1	49,495	14,848.66	3	59
3	LIGNITE	VILLAGE OF LIGNITE	1	9	1	11,199	3,359.74	12	57
3	LINTON	CITY OF LINTON	1	9	1	56,724	17,017.07	2	60
3	LITCHVILLE	VILLAGE OF LITCHVILLE	1	9	1	26,867	8,060.23	10	58
3	MAKOTI	VILLAGE OF MAKOTI	1	9	1	14,114	4,234.28	3	57
3	MC CLUSKY	CITY OF MCCLUSKY	1	9	1	26,052	7,815.80	3	58
2	MILTON	VILLAGE OF MILTON	1	9	1	31,004	9,301.06	1	58
2	MINOT	CITY OF MINOT	4	9	1	1,095,000	250,000.00	10	59
2	MINOT	CITY OF MINOT	5	3	2	570,000	171,000.00	2	61
3	MOHALL	CITY OF MOHALL	1	9	1	27,315	8,194.70	8	57
3	MOORETON	VILLAGE OF MOORETON	1	9	1	973	292.08	4	58
3	MOTT	CITY OF MOTT	1	9	1	40,086	12,025.85	2	57
3	MUNICH	VILLAGE OF MUNICH	1	9	1	25,354	7,606.38	12	57
3	NECHE	CITY OF NECHE	1	2	1	9,053	2,716.13	3	58
3	OSNABROCK	VILLAGE OF OSNABROCK	1	9	1	28,718	8,615.41	12	57

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1	PAGE	CITY OF PAGE	1	9	1	53,006	15,901.86	12 61
3	PARK RIVER	CITY OF PARK RIVER	1	2	1	55,074	16,522.25	10 58
3	PARSHALL	CITY OF PARSHALL	1	9	1	33,389	10,016.95	6 57
1	PEKIN	VILLAGE OF PEKIN	1	9	1	31,933	9,579.92	6 61
3	PEMBINA	CITY OF PEMBINA	1	9	1	76,489	22,946.78	1 57
3	PETERSBURG	VILLAGE OF PETERSBURG	1	9	1	32,702	9,810.72	4 57
1	PORTAL	TOWN OF PORTAL	1	9	1	39,134	11,740.35	3 60
3	REEDER	VILLAGE OF REEDER	1	9	1	10,287	3,086.18	2 57
2	RICHARDTON	CITY OF RICHARDTON	1	9	1	30,750	9,225.00	7 60
3	ROCK LAKE	VILLAGE OF ROCK LAKE	1	9	1	36,847	11,054.16	5 59
3	ROLLA	CITY OF ROLLA	1	4	1	9,319	2,795.73	8 58
1	RUGBY	CITY OF RUGBY	2	9	1	48,567	14,569.96	7 61
2	RUTLAND	VILLAGE OF RUTLAND	1	9	1	29,292	8,787.50	8 60
3	RYDER	VILLAGE OF RYDER	1	9	1	16,626	4,987.95	4 57
3	S W FARGO	CITY OF S W FARGO	1	3	1	26,281	7,884.42	2 59
3	S W FARGO	CITY OF S W FARGO	1	9	1	253,928	76,178.47	7 57
1	S W FARGO	CITY OF S W FARGO	2	3	1	28,606	6,711.60	9 61
1	S W FARGO	CITY OF S W FARGO	2	9	2	32,531	9,759.31	12 60
1	SANBORN	VILLAGE OF SANBORN	1	9	1	28,089	8,426.64	5 61
3	SELFRIDGE	VILLAGE OF SELFRIDGE	1	9	1	9,428	2,828.56	9 58
3	SHERWOOD	CITY OF SHERWOOD	1	9	1	46,070	13,821.04	2 57
3	SHEYENNE	VILLAGE OF SHEYENNE	1	9	1	30,939	9,281.89	2 59
3	ST THOMAS	CITY OF ST THOMAS	1	9	1	46,438	13,931.52	3 59
3	STARKWEATHER	VILLAGE OF STARKWEATHER	1	9	1	25,071	7,521.44	7 57
3	TAYLOR	VILLAGE OF TAYLOR	1	9	1	17,867	5,360.13	8 57
3	TOLNA	VILLAGE OF TOLNA	1	9	1	28,175	8,452.50	2 59
3	TOWER CITY	VILLAGE OF TOWER CITY	1	9	1	14,766	4,429.69	3 60
3	TUTTLE	VILLAGE OF TUTTLE	1	9	1	34,346	10,303.87	5 59
3	UNDERWOOD	CITY OF UNDERWOOD	1	9	1	53,110	15,932.85	5 58
3	UPHAM	CITY OF UPHAM	1	9	1	30,114	9,034.06	2 59

3	VALLEY CITY	CITY OF VALLEY CITY	3	9	1	152,799	45,839.72	7	59
1	WAHPETON	CITY OF WAHPETON	3	4	1	77,175	23,152.50	3	60
3	WAHPETON	CITY OF WAHPETON	3	9	1	197,740	59,322.12	5	58
1	WALHALLA	CITY OF WALHALLA	1	9	1	67,000	20,100.00	9	60
3	WATFORD CITY	CITY OF WATFORD CITY	1	9	5	12,403	3,721.02	5	60
1	WEST FARGO	VILLAGE OF WEST FARGO	1	7	7	157,407	47,222.10	10	61
1	WESTHOPE	CITY OF WESTHOPE	1	9	1	23,500	7,050.00	9	57
3	WILLOW CITY	CITY OF WILLOW CITY	1	9	1	29,138	8,741.53	4	57
3	WING	CITY OF WING	1	9	1	23,560	7,068.15	2	58
2	WYNDMERE	CITY OF WYNDMERE	1	9	1	43,306	12,991.75	8	60
	OHIO								
3	AMHERST	VILLAGE OF AMHERST	2	7	2	428,503	128,352.60	4	57
3	ARCHBOLD	VILLAGE OF ARCHBOLD	1	7	1	933,131	250,000.00	9	59
2	AVON LAKE	VILLAGE OF AVON LAKE	2	1	1	1,030,750	250,000.00	9	59
3	BALTIMORE	VILLAGE OF BALTIMORE	1	7	1	321,589	96,476.58	9	58
1	BARBERTON	CITY OF BARBERTON	5	1	2	1,484,627	250,000.00	12	61
3	BETHEL	VILLAGE OF BETHEL	1	7	1	221,400	58,050.00	9	59
1	BRADFORD	VILLAGE OF BRADFORD	1	7	1	382,318	114,695.00	9	60
3	BREWSTER	VILLAGE OF BREWSTER	1	7	1	243,068	72,920.30	11	57
3	BRILLIANT	VILLAGE OF BRILLIANT	1	7	1	163,549	49,064.73	6	58
2	BROOKFIELD	TRUMBULL CO BD OF COM	5	1	1	537,084	161,125.46	4	61
2	BRYAN	CITY OF BRYAN	3	1	2	468,493	140,547.75	9	61
3	CAMPBELL	CITY OF CAMPBELL	4	7	1	598,129	33,400.00	7	57
2	CANAL FULTON	VILLAGE OF CANAL FULTON	1	7	1	194,086	43,594.80	12	57
3	CANAL WINCHSTR	VILL CANAL WINCHESTER	1	7	1	310,152	93,045.57	9	59
2	CAREY	VILLAGE OF CAREY	2	1	2	329,071	98,721.45	8	61
2	CELINA	CITY OF CELINA	3	1	2	342,055	102,616.50	8	61
2	CENTERBURG	VILLAGE OF CENTERBURG	1	1	1	134,084	40,225.26	11	60
3	CONTINENTAL	VILLAGE OF CONTINENTAL	1	7	1	241,399	72,419.63	5	57
3	DELTA	TOWN OF DELTA	1	7	1	260,197	78,059.04	3	57
3	DESHLER	VILLAGE OF DESHLER	1	9	1	147,386	44,215.87	2	59
3	DRESDEN	VILLAGE OF DRESDEN	1	1	1	77,350	23,205.14	10	59
3	E LIVERPOOL	CITY OF EAST LIVERPOOL	4	3	1	782,727	234,818.08	2	57

STATUS	LOCATION	NAME OF APPLICANT	POP CODE	DESCRIP TION	TYPE CONST	ESTIMATED ELIGIBLE COST OF PROJECT	FEDERAL GRANT OFFER	PROJECT APPROVED MONTH-YEAR
2	ELYRIA	CITY OF ELYRIA	5	7	2	3,145,360	250,000.00	8 61
3	FARMERSVILLE	VILLAGE OF FARMERSVILLE	1	7	1	103,209	30,962.56	6 59
3	FLUSHING	VILLAGE OF FLUSHING	1	7	1	146,559	43,967.57	11 57
2	FRANKLIN CO	TRURO SEWER DIST 1	1	5	1	221,548	66,464.47	11 60
3	GAHANNA	TOWN OF GAHANNA	1	1	1	156,435	45,284.85	3 57
2	GALLIPOLIS	CITY OF GALLIPOLIS	3	1	1	834,248	250,000.00	8 58
3	GARRETTSVILLE	VILL OF GARRETTSVILLE	1	1	1	122,570	36,770.99	8 58
2	GIRARD	CITY OF GIRARD	4	7	1	935,094	250,000.00	5 61
3	GNADENHUTTEN	VILLAGE OF GNADENHUTTEN	1	1	5	91,342	27,000.00	4 59
2	HAMILTON CO	HAMILTON CO 4 MILE S D	2	7	1	505,340	151,601.85	10 60
2	HEATH	VILLAGE OF HEATH	1	1	1	529,316	158,794.80	8 61
1	HOWLAND TWP	TRUMBULL CO BD OF COMRS	1	1	1	118,500	35,550.00	8 61
1	HUDSON	VILLAGE OF HUDSON	1	7	1	631,558	189,467.37	9 60
3	LEIPSIC	VILLAGE OF LEIPSIC	1	1	1	211,809	63,542.78	2 57
3	LEROY	VILLAGE OF LEROY	1	7	1	92,441	27,732.30	4 58
2	LOUDONVILLE	VILLAGE OF LOUDONVILLE	2	7	1	320,426	96,127.95	9 60
3	LOWELLVILLE	VILLAGE OF LOWELLVILLE	1	7	1	313,829	94,148.75	11 57
3	MAHONING CO	MILTON SEWER DIST 11	1	1	1	91,291	27,387.17	4 59
3	MANSFIELD	CITY OF MANSFIELD	5	1	1	3,991,247	250,000.00	9 57
3	MAUMEE	CITY OF MAUMEE	3	3	1	479,338	143,801.47	3 57
2	MCARTHUR	VILLAGE OF MCARTHUR	1	1	7	121,474	36,442.00	9 60
3	MCDONALD	VILLAGE OF MCDONALD	1	6	1	288,381	82,500.00	8 58
2	MILFORD	VILLAGE OF MILFORD	1	7	1	525,397	157,619.10	9 59
3	MILLERSBURG	VILLAGE OF MILLERSBURG	1	7	1	334,498	100,349.45	11 57
1	MILLERSPORT	VILLAGE OF MILLERSPORT	1	1	1	78,111	23,433.30	9 61
3	MINGO JCT	VILLAGE OF MINGO JUNCT	2	7	1	615,328	184,598.25	8 58
3	MONTPELIER	VILLAGE OF MONTPELIER	2	7	1	365,057	109,517.20	4 57
3	N BALTIMORE	VILLAGE NORTH BALTIMORE	2	7	1	307,143	92,142.90	9 59
3	NAPOLEON	CITY OF NAPOLEON	3	1	1	729,606	218,881.74	8 58
2	NEW WATERFORD	VILLAGE NEW WATERFORD	1	7	1	97,400	29,219.96	10 60
3	NEWTON FALLS	VILLAGE OF NEWTON FALLS	2	7	1	836,465	250,000.00	8 58
3	NILES	CITY OF NILES	4	1	1	988,601	250,000.00	9 59

3	NORTHFIELD	VILLAGE OF NORTHFIELD	1	1	1	97,974	29,392.12	3	58
3	NORTH OLMSTED	CITY OF NORTH OLMSTED	3	7	1	1,510,455	250,000.00	9	59
3	OAK HARBOR	VILLAGE OF OAK HARBOR	1	7	1	465,878	139,763.27	8	57
3	PAINESVILLE	CITY OF PAINESVILLE	4	3	1	841,917	249,825.60	3	57
3	PERRYSBURG	VILLAGE OF PERRYSBURG	2	7	1	691,102	207,330.71	8	57
3	REYNOLDSBURG	VILLAGE OF REYNOLDSBURG	1	1	2	188,776	56,632.88	4	57
3	ROCKFORD	VILLAGE OF ROCKFORD	1	7	1	138,262	41,478.62	11	57
3	S ZANESVILLE	VILLAGE OF S ZANESVILLE	1	1	1	140,349	41,220.00	3	57
3	SABINA	VILLAGE OF SABINA	1	1	1	167,349	50,204.69	9	59
3	SANDUSKY	CITY OF SANDUSKY	5	1	1	1,439,288	250,000.00	9	57
3	SEAMAN	VILLAGE OF SEAMAN	1	1	1	71,370	21,411.07	12	57
2	SEVILLE	VILLAGE OF SEVILLE	1	7	1	124,400	37,320.00	9	60
3	SHILOH	VILLAGE OF SHILOH	1	7	1	95,444	28,633.28	11	57
1	SHREVE	VILL OF SHREVE	1	7	2	187,200	56,160.00	8	61
2	SMITHVILLE	VILLAGE OF SMITHVILLE	1	7	1	161,791	48,537.56	9	59
2	SOLON	VILLAGE OF SOLON	2	7	1	862,996	250,000.00	10	60
2	SOUTH POINT	VILLAGE OF SOUTH POINT	1	7	1	154,750	45,000.00	9	59
3	SWANTON	VILLAGE OF SWANTON	1	7	1	451,336	135,400.66	2	57
3	TILTONSVILLE	VILLAGE OF TILTONSVILLE	1	7	1	230,238	53,850.00	12	57
3	TORONTO	CITY OF TORONTO	3	7	1	836,740	115,753.71	11	59
2	TRUMBULL CO	MINERAL RIDGE SEW DIST	1	7	1	283,168	84,950.40	9	60
1	VANDALIA	CITY OF VANDALIA	3	1	2	300,000	90,000.00	9	61
3	VERMILION	VERMILION ON THE LAKE	1	1	1	106,792	30,000.00	3	57
3	W JEFFERSON	VILLAGE OF JEFFERSON	2	7	1	374,774	112,432.25	8	58
2	WARREN	CITY OF WARREN	5	6	1	3,651,681	250,000.00	8	58
2	WASHINGTONVILL	VILL OF WASHINGTONVILLE	1	7	1	59,633	17,889.90	2	58
3	WATERVILLE	TOWN OF WATERVILLE	1	5	4	176,467	52,940.00	3	57
1	WAYNESVILLE	VILL OF WAYNESVILLE	1	1	1	110,000	33,000.00	8	61
3	WAYNESBURG	VILLAGE OF WAYNESBURG	1	7	1	95,242	28,572.68	12	57
1	WELLSTON	CITY OF WELLSTON	3	1	2	163,842	49,152.60	9	61
3	WELLSVILLE	CITY OF WELLSVILLE	3	7	1	399,552	119,865.59	9	57
1	WESTON	VILLAGE OF WESTON	1	7	1	384,646	115,393.00	9	60
1	WILLIAMSBURG	VILL OF WILLIAMSBURG	1	5	1	127,500	38,250.00	8	61
2	YELLOW SPRINGS	VILL OF YELLOW SPRINGS	2	7	1	416,964	125,089.33	10	60

STATUS	LOCATION	NAME OF APPLICANT	POP CODE	DESCRIP TION	TYPE CONST	ESTIMATED ELIGIBLE COST OF PROJECT	FEDERAL GRANT OFFER	PROJECT APPROVED MONTH-YEAR
3	YORKVILLE	VILLAGE OF YORKVILLE	1	5	1	342,862	96,630.00	3 57
	OKLAHOMA							
2	ALINE	TOWN OF ALINE	1	9	1	30,714	9,214.14	10 61
3	ALLEN	TOWN OF ALLEN	1	5	1	104,111	31,233.28	11 59
3	ARDMORE	CITY OF ARDMORE	4	5	1	594,787	150,000.00	3 57
3	ARNETT	TOWN OF ARNETT	1	9	1	15,966	4,789.75	6 58
3	BARTLESVILLE	CITY OF BARTLESVILLE	4	3	1	305,458	91,637.40	10 59
3	BEAVER CITY	TOWN OF BEAVER CITY	1	7	4	42,233	12,669.80	4 59
2	BETHANY	BETHANY PUB WORKS AUTH	3	3	1	313,245	93,973.53	4 61
3	BLAIR	TOWN OF BLAIR	1	9	1	8,384	2,515.29	8 59
2	BLANCHARD	CITY OF BLANCHARD	1	1	1	69,440	20,832.11	9 61
2	BOSWELL	TOWN OF BOSWELL	1	9	1	69,925	20,977.52	2 61
3	BROKEN BOW	CITY OF BROKEN BOW	1	5	4	171,036	51,310.85	8 59
3	BROKEN ARROW	CITY OF BROKEN ARROW	2	5	1	311,898	93,569.54	7 58
3	CACHE	TOWN OF CACHE	1	9	1	31,381	8,688.95	3 57
3	CADDO	TOWN OF CADDO	1	3	2	16,268	4,880.54	2 61
1	CALERA	TOWN OF CALERA	1	1	1	67,507	20,251.95	9 61
2	CALUMET	TOWN OF CALUMET	1	9	1	26,288	7,886.26	10 60
3	CARMEN	TOWN OF CARMEN	1	9	1	50,810	15,243.08	6 59
3	CARNEGIE	TOWN OF CARNEGIE	1	1	1	36,039	10,736.70	3 57
2	CHATTANOOGA	TOWN OF CHATTANOOGA	1	9	1	32,000	9,600.00	12 60
3	CHECOTAH	CITY OF CHECOTAH	2	5	1	149,487	44,846.06	3 59
3	CHELSEA	TOWN OF CHELSEA	1	9	1	22,440	6,000.00	4 58
3	CHICKASHA	CITY OF CHICKASHA	4	1	2	96,082	28,824.49	5 57
2	CHOCTAW	TOWN OF CHOCTAW	1	1	1	73,698	22,109.50	9 61
3	CHOUTEAU	CITY OF CHOUTEAU	1	5	1	149,353	43,500.00	2 58
2	CLAREMORE	CITY OF CLAREMORE	3	7	1	576,000	172,800.00	3 60
3	CLINTON	CITY OF CLINTON	3	5	4	102,750	30,825.00	4 59

3	COPAN	TOWN OF COPAN	1	9	1	95,826	27,747.73	6	59
3	CUSHING	CITY OF CUSHING	3	5	4	474,971	140,153.96	10	57
3	DEL CITY	DEL CITY MUN SER AUTH	2	1	2	70,766	21,229.86	2	59
1	DEL CITY	DEL CITY MUN SER AUTH	4	8	2	83,574	25,072.20	10	61
3	DILL CITY	TOWN OF DILL CITY	3	6	1	22,689	6,806.82	10	57
3	DRUMMOND	TOWN OF DRUMMOND	1	9	1	18,625	5,252.28	9	60
3	DRUMRIGHT	CITY OF DRUMRIGHT	3	5	1	123,375	36,995.00	2	57
3	EAST DUKE	TOWN OF EAST DUKE	1	9	1	25,999	7,799.84	4	59
2	EL RENO	CITY OF EL RENO	4	5	4	345,708	103,712.35	12	60
3	ELMORE CITY	TOWN OF ELMORE CITY	1	9	1	71,825	21,547.50	1	60
2	EUFAULA	CITY OF EUFAULA	2	1	1	251,268	75,380.46	10	60
3	FARGO	TOWN OF FARGO	1	9	1	12,124	3,637.15	6	58
3	FORGAN	TOWN OF FORGAN	1	9	1	23,651	7,095.23	3	60
3	FORT COBB	TOWN OF FORT COBB	1	9	1	12,136	3,640.82	12	60
3	FORT SUPPLY	TOWN OF FORT SUPPLY	1	9	1	17,789	4,276.42	5	59
3	GOLTRY	TOWN OF GOLTRY	1	9	1	17,134	5,140.06	9	60
3	GRANDFIELD	CITY OF GRANDFIELD	1	9	2	34,193	10,258.04	6	60
3	GROVE	TOWN OF GROVE	1	5	1	85,353	25,605.95	3	57
3	HARRAH	TOWN OF HARRAH	1	5	1	38,787	11,309.43	10	57
2	HELENA	TOWN OF HELENA	1	9	1	40,411	12,123.27	10	61
3	HENNESSEY	TOWN OF HENNESSEY	1	9	1	51,996	15,598.83	1	59
3	HOLLIS	CITY OF HOLLIS	2	7	7	37,666	11,299.74	11	59
2	HUGO	CITY OF HUGO	3	5	1	324,167	97,250.18	3	61
3	INDIAHOMA	TOWN OF INDIAHOMA	1	9	1	27,470	8,240.00	10	60
3	JET	TOWN OF JET	1	9	1	33,208	9,962.26	9	60
3	KINGFISHER	CITY OF KINGFISHER	2	7	2	90,000	27,000.00	12	59
3	KINGSTON	CITY OF KINGSTON	1	9	1	47,305	13,880.27	3	57
3	LAWTON	CITY OF LAWTON	5	3	1	585,121	175,536.30	3	60
3	LAWTON	CITY OF LAWTON	5	1	3	762,466	228,739.91	6	59
2	LAWTON	CITY OF LAWTON	5	3	1	483,366	145,009.71	11	60
2	LEXINGTON	TOWN OF LEXINGTON	1	7	4	43,944	13,183.05	1	61
3	LINDSAY	CITY OF LINDSAY	2	1	2	49,194	14,758.11	10	57
3	LOCUST GROVE	CITY OF LOCUST GROVE	1	5	1	136,885	41,065.57	2	58
3	LUTHER	TOWN OF LUTHER	1	9	1	38,325	11,497.42	3	57

STATUS	LOCATION	NAME OF APPLICANT	POP CODE	DESCRIP TION	TYPE CONST	ESTIMATED ELIGIBLE COST OF PROJECT	FEDERAL GRANT OFFER	PROJECT APPROVED MONTH-YEAR
3	MANGUM	CITY OF MANGUM	2	6	1	140,803	42,240.92	10 57
2	MANITOU	TOWN OF MANITOU	1	9	1	38,293	11,488.02	12 60
2	MANNFORD	TOWN OF MANNFORD	1	7	1	100,049	30,014.58	10 60
3	MARIETTA	CITY OF MARIETTA	1	1	1	77,971	23,391.42	2 57
2	MEDFORD	TOWN OF MEDFORD	1	1	4	7,380	2,214.00	1 60
2	MOORE	TOWN OF MOORE	1	5	2	144,638	43,391.32	10 61
3	MUSKOGEE	CITY OF MUSKOGEE	5	1	1	689,100	180,000.00	12 57
3	MUSKOGEE	CITY OF MUSKOGEE	5	2	1	719,839	150,000.00	3 57
3	NORMAN	CITY OF NORMAN	5	5	4	291,597	87,479.06	3 57
2	NORTH ENID	TOWN OF NORTH ENID	1	9	1	48,527	14,558.22	6 61
2	OKARCHE	TOWN OF OKARCHE	1	9	1	30,164	9,049.20	11 60
3	OKLAHOMA CITY	OKLAHOMA CITY DEV TRUST	7	9	1	50,148	14,958.60	6 59
3	OKLAHOMA CITY	CITY OF OKLAHOMA CITY	7	1	2	507,490	152,246.91	3 57
1	OKLAHOMA CITY	CITY OF OKLAHOMA CITY	8	3	1	201,286	60,385.82	11 61
2	OKLAHOMA CO	OKLAHOMA COUNTY AUTH	8	5	1	956,275	250,000.00	4 59
1	PAULS VALLEY	CITY OF PAULS VALLEY	3	1	1	95,182	28,554.00	9 61
3	PAWNEE	CITY OF PAWNEE	2	1	2	29,605	8,881.51	3 57
1	POTEAU	CITY OF POTEAU	2	9	1	207,685	62,305.58	3 61
3	PRAGUE	TOWN OF PRAGUE	1	3	1	18,057	5,417.16	12 58
2	PURCELL	CITY OF PURCELL	2	9	1	73,500	22,000.00	2 61
1	RIPLEY	TOWN OF RIPLEY	1	9	1	23,455	7,036.43	10 61
1	ROFF	TOWN OF ROFF	1	9	1	69,799	20,939.71	12 61
3	S COFFEYVILLE	TOWN OF SO COFFEYVILLE	1	9	1	49,701	14,910.17	3 59
1	SALINA	TOWN OF SALINA	1	9	1	91,359	27,407.67	8 61
1	SAVANNA	SAVANNA PUB WORKS AUTH	1	9	1	117,749	35,324.62	10 61
3	SEMINOLE	CITY OF SEMINOLE	4	7	4	325,130	97,539.14	4 59
2	SHATTUCK	TOWN OF SHATTUCK	1	7	1	126,981	38,094.27	11 60
3	SHAWNEE	CITY OF SHAWNEE	4	5	2	264,015	79,204.43	12 59
3	SPERRY	TOWN OF SPERRY	1	4	1	19,334	5,800.26	11 60
3	STRINGTOWN	CITY OF OKLAHOMA CITY	1	1	1	39,814	11,944.34	11 58
3	TALOGA	TOWN OF TALOGA	1	5	1	20,449	6,134.83	8 59

3	TECUMSEH	TECUMSEH UTILITY AUTH	1	5	1	139,229	41,768.65	11	59
3	THE VILLAGE	TOWN OF THE VILLAGE	4	5	4	98,440	29,532.00	3	59
1	THE VILLAGE	CITY OF THE VILLAGE	4	3	1	50,000	15,000.00	9	61
3	TONKAWA	CITY OF TONKAWA	2	2	3	15,659	4,697.55	6	59
3	TULSA	CITY OF TULSA	7	1	1	1,011,690	150,000.00	3	57
3	TULSA	CITY OF TULSA	7	3	1	300,649	90,194.62	4	59
3	TULSA	CITY OF TULSA	7	3	1	700,254	191,100.00	10	57
2	TURLEY AREA	TULSA CO UTIL SERV AUTH	2	8	1	305,998	91,799.40	5	61
1	TUTTLE	TOWN OF TUTTLE	1	9	1	54,061	16,218.18	10	61
3	TYRONE	TOWN OF TYRONE	1	9	1	30,844	9,253.30	5	59
3	UNION CITY	TOWN OF UNION CITY	1	9	1	18,602	5,580.53	9	60
3	WALTERS	CITY OF WALTERS	2	3	1	37,877	11,363.15	4	59
1	WASHINGTON	TOWN OF WASHINGTON	1	9	1	29,556	8,866.80	12	61
2	WAUKOMIS	TOWN OF WAUKOMIS	1	1	1	47,426	14,227.71	9	61
3	WAYNE	TOWN OF WAYNE	1	9	1	18,233	5,308.50	7	58
3	WEATHERFORD	CITY OF WEATHERFORD	2	7	7	167,067	50,120.06	8	59
2	WELLSTON	TOWN OF WELLSTON	1	9	1	37,780	11,333.94	9	60
3	WILBURTON	CITY OF WILBURTON	1	5	4	70,854	21,152.06	5	59
3	WILBURTON	E OKLA A AND M COLLEGE	2	9	1	14,723	4,417.00	12	60
3	WOODWARD	CITY OF WOODWARD	3	1	4	126,238	37,871.39	4	59
	OREGON								
3	ALBANY	CITY OF ALBANY	4	1	3	15,527	4,658.16	2	57
3	ASHLAND	CITY OF ASHLAND	3	1	2	319,316	95,790.00	1	60
1	ASHLAND	CITY OF ASHLAND	3	3	1	88,000	26,400.00	7	61
3	BROOKINGS	CITY OF BROOKINGS	1	7	1	142,591	42,777.42	6	59
3	BURNS	CITY OF BURNS	2	9	3	72,755	21,826.28	8	57
3	CANNON BEACH	CITY OF CANNON BEACH	1	9	1	85,790	25,730.00	6	58
3	CANYONVILLE	CITY OF CANYONVILLE	1	1	1	127,368	38,202.00	10	59
3	CLATSKANIE	CITY OF CLATSKANIE	1	5	1	193,310	57,993.07	2	57
3	CORNELIUS	CITY OF CORNELIUS	1	1	1	150,504	45,151.00	8	58
2	CRESWELL	CITY OF CRESWELL	1	9	1	68,070	20,420.00	11	60
2	DRAIN	CITY OF DRAIN	1	6	1	65,938	19,061.40	8	57

STATUS	LOCATION	NAME OF APPLICANT	POP CODE	DESCRIP TION	TYPE CONST	ESTIMATED ELIGIBLE COST OF PROJECT	FEDERAL GRANT OFFER	PROJECT APPROVED MONTH-YEAR
2	EAGLE POINT	CITY OF EAGLE POINT	1	9	1	92,000	27,600.00	1 61
1	ESTACADA	CITY OF ESTACADA	1	9	1	94,642	28,392.00	12 59
2	EUGENE	CITY OF EUGENE	5	1	7	635,534	190,500.00	9 60
3	FAIRVIEW	MULTNOMAH COUNTY	1	2	1	87,318	26,195.55	3 57
2	FANNO CREEK	MULTNOMAH COUNTY	5	7	1	1,632,542	250,000.00	9 59
2	FLORENCE	CITY OF FLORENCE	1	7	1	271,704	69,250.00	10 60
3	GOVT CAMP	GOVT CAMP SEWER DIST	1	6	1	79,395	23,818.50	4 57
3	HILLSBORO	CITY OF HILLSBORO	3	7	1	515,422	154,626.67	1 58
3	HOOD RIVER	CITY OF HOOD RIVER	2	7	1	193,213	57,960.00	5 59
3	KLAMATH FALLS	CITY OF KLAMATH FALLS	4	7	1	777,316	214,119.12	6 57
3	KLAMATH FALLS	SOUTH SUB SANITARY DIST	4	9	1	276,599	82,979.82	8 58
2	LA GRANDE	CITY OF LA GRANDE	3	9	1	399,000	119,700.00	7 61
1	LAKE OSWEGO	CITY OF LAKE OSWEGO	3	7	2	1,312,000	160,000.00	11 61
3	LAKEVIEW	CITY OF LAKEVIEW	2	9	1	168,138	42,715.00	8 59
3	LEBANON	CITY OF LEBANON	3	1	2	43,762	13,128.51	2 57
1	MILWAUKIE	CITY OF MILWAUKIE	3	1	2	182,100	54,630.00	10 61
3	MLTN FREEWATER	CITY OF MILTON FREEWTR	2	2	3	150,694	45,208.33	8 57
1	NEWBERG	CITY OF NEWBERG	2	5	5	259,600	77,880.00	12 60
3	NORTH BEND	CITY OF NORTH BEND	3	4	7	24,648	5,881.50	4 57
3	NYSSA	CITY OF NYSSA	1	7	2	120,082	36,020.00	7 60
2	OAK GROVE	OAK LODGE SAN DIST	3	5	1	869,904	250,000.00	5 59
2	OAK LODGE	OAK LODGE SAN DIST 2	2	3	1	209,773	61,920.00	8 60
3	ONTARIO	CITY OF ONTARIO	2	9	1	206,388	61,708.00	7 59
3	PILOT ROCK	TOWN OF PILOT ROCK	1	5	1	111,808	31,936.92	2 58
1	PORTLAND	CITY OF PORTLAND	5	5	1	1,085,500	250,000.00	11 61
2	PORTLAND	CITY OF PORTLAND	8	1	2	105,801	31,740.00	7 61
1	POWERS	CITY OF POWERS	1	1	1	108,800	32,640.00	11 60
3	PRAIRIE CITY	CITY OF PRAIRIE CITY	1	5	1	82,659	24,797.41	2 57
3	PRINEVILLE	CITY OF PRINEVILLE	2	9	1	120,368	35,130.00	7 59
3	RAINIER	CITY OF RAINIER	1	7	1	132,761	39,400.00	1 58
1	ROSEBURG	GREEN SAN DIST	1	9	1	173,900	52,170.00	10 61

3	ROSEBURG	CITY OF ROSEBURG	3	5	1	875,423	250,000.00	3	57
3	SALEM	CITY OF SALEM	5	3	1	144,293	43,280.00	8	60
2	SCIO	CITY OF SCIO	1	9	1	37,147	10,700.00	7	61
2	SEASIDE	CITY OF SEASIDE	2	7	4	169,029	50,700.00	10	60
2	SPRINGFIELD	CITY OF SPRINGFIELD	4	1	2	1,503,900	250,000.00	7	61
3	ST HELENS	CITY OF ST HELENS	2	5	1	404,442	121,090.00	11	57
3	SUNSET VALLEY	SUNSET VALLEY SAN DIST	2	6	3	212,139	63,641.67	9	57
1	TAFT	CITY OF TAFT	1	9	1	185,100	55,530.00	7	61
3	THE DALLES	CITY OF THE DALLES	3	1	1	276,550	82,965.00	5	59
3	TIGARD	TIGARD SAN DIST	1	1	1	87,197	26,159.19	2	57
3	TILLAMOOK	CITY OF TILLAMOOK	2	7	6	178,126	53,437.83	3	57
2	VERNONIA	CITY OF VERNONIA	1	9	1	55,500	16,650.00	12	59
3	WEST SLOPE	WEST SLOPE SAN DIST	2	8	1	855,375	250,000.00	11	59
3	WESTON	CITY OF WESTON	1	5	1	88,604	26,581.07	8	57
3	WOODBURN	CITY OF WOODBURN	1	3	1	41,722	12,510.00	7	60
	PENNSYLVANIA								
2	ABINGTON	ABINGTON TOWNSHIP	5	1	2	494,775	142,800.00	10	59
2	AMBLER	BOROUGH OF AMBLER	2	7	1	957,500	250,000.00	9	60
1	ATGLEN	ATGLEN BOR SEW AUTH	1	5	1	100,201	30,060.02	10	61
1	BEAVER	BEAVER BOROUGH MUN AUTH	3	7	1	655,750	196,725.00	12	61
3	BERWICK	MUNICIPAL AUTH BERWICK	4	7	1	988,077	250,000.00	4	57
3	BETHEL	BOROUGH OF BETHEL	4	1	1	1,205,385	250,000.00	11	57
2	BIRDSBORO	BIRDSBORO MUN AUTH	2	7	1	70,853	21,255.98	12	61
2	BRADFORD	BRADFORD SAN AUTH	4	7	1	901,437	250,000.00	10	59
3	BROOKVILLE	BROOKVILLE MUN AUTH	2	1	1	266,456	79,936.90	6	59
3	CARLISLE	CARLISLE BORO SEW AUTH	4	6	4	341,742	102,522.52	2	58
3	CHRISTIANA	BOROUGH OF CHRISTIANA	1	5	1	170,405	51,121.51	2	58
1	CLAIRTON	CLAIRTON MUN AUTH	4	7	1	1,230,000	250,000.00	11	61
2	COATESVILLE	COATESVILLE SEWAGE AUTH	4	1	7	1,217,000	250,000.00	9	60
2	CONNELLSVILLE	CONNELLSVILLE MUN AUTH	4	7	1	864,600	250,000.00	10	60
3	CORAOPOLIS	CORAOPOLIS MUN SAN AUTH	4	7	1	1,196,479	250,000.00	3	58
3	DOYLESTOWN	DOYLESTOWN BOROUGH AUTH	3	7	1	200,460	59,203.76	12	57

STATUS	LOCATION	NAME OF APPLICANT	POP CODE	DESCRIPTION	TYPE CONST	ESTIMATED ELIGIBLE COST OF PROJECT	FEDERAL GRANT OFFER	PROJECT APPROVED MONTH-YEAR	
2	DUBOIS	DUBOIS SEWAGE AUTHORITY	4	1	1	1,250,000	250,000.00	10	59
2	E STROUDSBURG	E STROUDSBURG BOR AUTH	3	7	1	833,333	250,000.00	12	60
3	EBENSBURG	BOROUGH OF EBENSBURG	2	7	1	832,220	249,666.03	8	58
3	ELIZABETH	ELIZABETH BORO MUN AUTH	2	7	1	545,503	163,650.85	6	57
3	ELIZABETH	ELIZABETH TOWNSHIP	3	5	1	993,740	250,000.00	12	59
2	EMPORIUM	MUN AUTH BORO EMPORIUM	2	1	1	276,796	83,038.87	10	61
1	FORD CITY	FORD CITY BOR MUN S D A	3	7	1	710,675	213,202.50	10	61
2	FREEPORT	FREEPORT BORO SEW AUTH	2	7	1	397,787	119,336.10	10	58
3	GALETON	GALETON BORO AUTH	1	7	1	209,519	62,855.78	6	57
3	GREENVILLE	GREENVILLE SAN AUTH	4	1	1	985,000	250,000.00	9	57
2	HARMAR TWP	ALLEGHENY VALLEY J S A	4	7	1	2,702,583	250,000.00	10	60
3	HARRISBURG	HARRISBURG SEWER AUTH	6	7	1	2,523,765	250,000.00	6	57
3	HATFIELD	HATFIELD BOROUGH AUTH	1	1	1	229,747	68,924.18	9	58
2	HONESDALE	HONESDALE MUN AUTHORITY	3	7	1	1,064,013	250,000.00	12	58
3	HOPEWELL	HOPEWELL TOWNSHIP AUTH	3	7	1	684,000	205,200.00	11	57
2	JOHNSTOWN	JOHNSTOWN MUN AUTH	6	7	1	2,307,823	250,000.00	10	59
2	KING PRUSSIA	UPPER MERION TWP AUTH	4	7	1	875,738	250,000.00	11	60
3	KITTANNING	BOROUGH OF KITTANNING	3	1	1	520,499	156,149.73	12	58
1	LANCASTER	CITY OF LANCASTER S A	6	1	2	1,085,000	250,000.00	12	61
3	LANSDALE	BORO COUNCIL LANSDALE	3	1	2	57,689	17,306.80	3	58
2	LEBANON	CITY OF LEBANON AUTH	5	7	1	2,291,509	250,000.00	10	61
3	LEETSDALE	BOROUGH OF LEETSDALE	1	5	1	760,000	228,000.00	4	59
1	LIGONIER	LIGONIER MUN AUTH	1	1	1	497,992	149,397.50	10	61
3	LOWER BURRELL	TOWNSHIP LOWER BURRELL	3	3	1	170,636	50,247.57	10	59
3	MCKEESPORT	CITY OF MCKEESPORT	6	7	1	1,064,305	250,000.00	10	58
3	MOHNTON	MOHNTON BOROUGH AUTH	1	3	1	46,900	14,069.88	2	58
2	MONTGOMERY CO	UPPER MONTGOMERY AUTH	2	7	1	835,874	250,000.00	7	59
2	MONTGOMERY CO	E NORRITON PLYMOUTH JSA	3	5	1	1,020,000	250,000.00	10	59
1	MONTROSE	MONTROSE MUN AUTH	1	1	1	215,270	64,581.00	10	61
2	MUHLENBERG TWP	MUHLENBERG TWP AUTH	4	3	2	90,096	27,028.80	12	61

2	N COVENTRY	NORTH COVENTRY MUN AUTH	2	7	1	407,746	122,323.81	6	60
3	N KENSINGTON	CITY OF NEW KENSINGTON	5	1	1	2,990,000	250,000.00	8	58
3	NORTH EAST	NORTH EAST BORO AUTH	2	1	2	232,741	69,822.29	6	57
2	OAKMONT	BOROUGH OF OAKMONT	3	7	1	1,520,911	250,000.00	10	60
3	OIL CITY	OIL CITY GEN AUTH	4	7	1	836,613	250,000.00	5	57
3	OSBORNE	BOROUGH OF OSBORNE	1	3	1	109,408	32,822.45	10	57
3	PARKESBURG	BOROUGH OF PARKESBURG	2	1	4	154,138	46,241.49	8	58
1	PEN ARGYL	PEN ARGYL MUN AUTH	2	7	1	209,500	62,850.00	11	61
3	PENN TOWNSHIP	TOWNSHIP OF PENN	5	7	1	994,750	250,000.00	6	57
3	PERKASIE	PERKASIE BOROUGH AUTH	2	1	7	451,419	135,425.60	2	58
3	PHILADELPHIA	CITY OF PHILADELPHIA	9	3	1	1,036,782	250,000.00	6	57
3	PITTSBURGH	ALLEGHENY CO SAN AUTH	8	7	1	325,425	97,627.50	6	57
3	PLEASANT HILLS	PLEASANT HILLS AUTH	4	7	1	1,380,881	250,000.00	4	58
3	PORT ALLEGANY	BORO OF PORT ALLEGANY	2	1	1	296,638	88,991.40	9	58
3	RADNOR	RADNOR TWNSHP MUN AUTH	4	3	1	117,385	35,215.50	10	57
3	REDBANK VALLEY	REDBANK VALLEY MUN AUTH	1	1	1	371,387	108,000.00	10	59
3	REYNOLDSVILLE	REYNOLDSVILLE SEW AUTH	2	5	1	400,170	120,000.00	10	59
2	ROCHESTER	ROCHESTER AREA JOINT SA	4	7	1	169,850	50,775.30	11	61
1	SHARON	CITY OF SHARON SAN AUTH	5	1	7	1,015,739	250,000.00	10	61
2	SHARPSVILLE	BOROUGH OF SHARPSVILLE	3	1	4	214,773	64,431.90	6	60
3	STATE COLLEGE	STATE COLLEGE S AUTH	4	3	1	9,734	2,920.16	3	58
3	STEELTON	STEELTON BOROUGH AUTH	4	3	1	988,575	250,000.00	6	59
2	TARENTUM	UPPER ALLEGHENY J S A	5	7	1	2,118,595	250,000.00	10	60
1	TYRONE	TYRONE BORO SEWER AUTH	3	1	3	1,035,711	250,000.00	9	61
3	VERSAILLES	VERSAILLES BOROUGH AUTH	1	3	1	186,933	56,079.95	5	59
3	WARMINSTER	WARMINSTER TNSHP M AUTH	3	6	1	325,400	77,940.00	2	59
3	WARREN	WARREN BORO SAN AUTH	4	7	1	891,218	250,000.00	6	57
2	WEST GROVE	WEST GROVE BORO AUTH	1	7	1	174,000	52,200.00	12	60
2	WEST MIFFLIN	BOROUGH OF WEST MIFFLIN	4	7	5	783,049	234,914.76	1	61
3	WHITE HAVEN	WHITE HAVEN MUN AUTH	1	7	1	203,591	59,175.00	6	57
3	WHITEMARSH	WHITEMARSH TWNSHP AUTH	3	1	1	498,791	149,637.22	10	58
2	WHITPAIN	WHITPAIN TWP SEWER AUTH	3	3	1	145,456	43,635.00	9	60
1	YORK	YORK CITY SEWER AUTH	6	1	2	989,000	250,000.00	10	61

STATUS	LOCATION	NAME OF APPLICANT	POP CODE	DESCRIP TION	TYPE CONST	ESTIMATED ELIGIBLE COST OF PROJECT	FEDERAL GRANT OFFER	PROJECT APPROVED MONTH-YEAR	
	RHODE ISLAND								
3	CRANSTON	CITY OF CRANSTON	6	7	5	390,032	117,009.53	5	59
2	CRANSTON	CITY OF CRANSTON	6	3	2	496,000	148,800.00	3	61
3	CRANSTON	CITY OF CRANSTON	6	1	3	17,000	5,100.00	7	57
1	CRANSTON	CITY OF CRANSTON	6	1	2	62,500	18,750.00	9	61
2	E PROVIDENCE	CITY OF EAST PROVIDENCE	5	3	1	66,155	19,846.56	2	60
1	E PROVIDENCE	BLACKSTONE VALLEY S D	7	3	2	1,045,375	250,000.00	12	61
3	E PROVIDENCE	BLACKSTONE VALLEY S D	7	1	2	414,443	124,332.96	6	57
3	EXETER	STATE RHODE ISLAND	1	1	1	293,759	88,127.81	5	57
1	KINGSTON	UNIV OF RHODE ISLAND	2	5	1	400,000	120,000.00	6	61
2	MIDDLETOWN	TOWN OF MIDDLETOWN	3	3	1	198,000	59,000.00	6	60
1	MIDDLETOWN	TOWN OF MIDDLETOWN	4	5	1	1,208,250	250,000.00	12	61
3	MIDDLETOWN	TOWN OF MIDDLETOWN	4	3	1	31,417	9,425.24	12	60
3	NEWPORT	CITY OF NEWPORT	5	2	3	178,141	53,442.20	11	57
2	PROVIDENCE	CITY OF PROVIDENCE	7	1	6	418,320	125,496.00	4	59
3	PROVIDENCE	CITY OF PROVIDENCE	7	1	3	566,303	169,890.97	1	57
2	WEST WARWICK	TOWN OF WEST WARWICK	4	1	2	79,270	23,781.00	12	60
2	WESTERLY	PUBLIC WORKS COMMISSION	3	6	1	571,500	171,450.00	1	58
1	WOONSOCKET	CITY OF WOONSOCKET	6	1	1	1,750,000	250,000.00	6	60
	SOUTH CAROLINA								
3	ABBEVILLE	CITY OF ABBEVILLE	3	7	1	442,946	132,883.90	8	58
1	ANDERSON	CITY OF ANDERSON	4	5	1	1,450,000	250,000.00	6	59
1	ANDERSON	CITY OF ANDERSON	4	5	1	1,525,000	250,000.00	5	59
1	BAMBERG	TOWN COM OF PUB WORKS	2	9	1	135,000	40,500.00	4	61
3	BATESBURG	TOWN OF BATESBURG	2	7	1	325,465	97,639.43	3	59
3	BENNETTSVILLE	CITY OF BENNETTSVILLE	3	1	1	204,219	61,265.73	2	57
2	CLINTON	CITY OF CLINTON	3	1	7	95,000	28,500.00	8	60

3	CLOVER	TOWN OF CLOVER	2	1	1	89,953	26,985.97	5	58
1	COLUMBIA	S C STATE DEPT CORRECT	1	5	1	48,900	14,670.00	12	61
1	COLUMBIA	S C STATE DEPT CORRECT	2	7	1	309,627	92,887.98	12	61
1	CONWAY	CITY OF CONWAY	3	9	1	330,000	99,000.00	6	61
3	DARLINGTON	CITY OF DARLINGTON	3	6	1	454,564	136,369.17	4	59
1	DENMARK	CITY OF DENMARK	2	9	1	158,533	47,560.00	8	61
3	DILLON	CITY OF DILLON	3	7	5	126,408	37,922.33	1	57
3	DUE WEST	TOWN OF DUE WEST	1	7	1	77,755	21,995.71	4	57
3	EASLEY	CITY OF EASLEY	3	6	4	262,974	78,892.11	3	58
2	EDGEFIELD	TOWN OF EDGEFIELD	2	9	1	97,820	29,346.00	6	61
3	FORT MILL	TOWN OF FORT MILL	2	6	1	174,041	52,512.26	12	58
1	FORT JACKSON	JACKSON GILLS CREEK PSD	4		1	625,000	187,500.00	8	61
2	GAFFNEY	CITY OF GAFFNEY	3	7	5	319,000	95,700.00	3	59
2	GREENWOOD	GREENWOOD METRO COM	4	1	1	1,115,000	250,000.00	5	59
3	GREENVILLE CO	COUNTY MARKETING COM	4	2	1	19,206	5,632.07	12	57
3	HAMPTON	TOWN OF HAMPTON	1	7	1	179,861	53,898.28	9	58
1	HANAHAN	HANAHAN PUB SER DIST	3	5	1	453,113	135,933.00	12	61
3	INMAN	TOWN OF INMAN	1	5	1	223,211	66,963.33	10	57
3	JOHNSTON	TOWN OF JOHNSTON	1	1	1	54,442	16,332.70	3	57
3	LAKE CITY	CITY OF LAKE CITY	3	7	1	533,666	160,099.70	2	57
1	LATTA	TOWN OF LATTA	1	9	1	40,063	12,018.75	8	61
2	LAURENS	CITY OF LAURENS	3	3	1	199,604	59,881.28	8	59
3	LAURENS	CITY OF LAURENS	3	6	1	601,312	180,393.54	6	57
3	MANNING	TOWN OF MANNING	2	7	1	168,370	50,511.00	10	57
3	MARION	CITY OF MARION	3	1	1	247,097	74,129.22	1	58
2	MYRTLE BEACH	CITY OF MYRTLE BEACH	3	9	1	131,808	39,542.40	8	61
2	NEWBERRY	CITY OF NEWBERRY	3	3	1	18,000	5,400.00	5	61
3	NORTH	TOWN OF NORTH	1	1	4	45,097	13,529.11	6	57
2	OCEAN DR BEACH	TOWN OF OCEAN DR BEACH	1	9	1	69,361	20,808.30	3	61
1	PAGELAND	TOWN OF PAGELAND	1	9	1	132,330	39,700.00	7	61
1	PENDLETON	TOWN OF PENDLETON	1	9	1	220,121	66,036.00	11	60
2	ROCK HILL	CITY OF ROCK HILL	5	5	1	538,000	161,400.00	6	61
3	ROCK HILL	CITY OF ROCK HILL	4	9	1	951,298	250,000.00	6	57
1	SENECA	CITY OF SENECA	3	7	1	51,614	15,484.20	12	61
1	SIMPSONVILLE	GREENVILLE CO REHAB CTR	1	3	2	16,376	4,912.80	8	61
3	SIMPSONVILLE	TOWN OF SIMPSONVILLE	1	9	1	111,747	33,524.00	1	60
1	SPARTANBURG	SPARTANBURG MET DIST	5	2	2	106,000	31,800.00	12	61

STATUS	LOCATION	NAME OF APPLICANT	POP CODE	DESCRIP TION	TYPE CONST	ESTIMATED ELIGIBLE COST OF PROJECT	FEDERAL GRANT OFFER	PROJECT APPROVED MONTH-YEAR
1	SPARTANBURG	SPARTANBURG METRO DIST	5	2	2	333,334	100,000.20	8 61
3	SPARTANBURG	CITY OF SPARTANBURG	5	8	1	479,514	143,854.13	9 57
3	SUMMERTON	TOWN OF SUMMERTON	1	1	3	20,997	6,298.97	1 58
3	UNION	CITY OF UNION	3	3	1	29,878	8,963.30	5 58
2	WEST PELZER	TOWN OF WEST PELZER	1	7	1	108,809	32,643.00	1 61
3	WHITTEN VILL	BOARD OF TRUSTEES	2	1	1	84,595	25,378.50	9 57
3	WINNSBORO	TOWN OF WINNSBORO	2	6	1	412,823	123,846.90	8 57
2	YORK	TOWN OF YORK	2	9	1	297,035	89,110.00	6 61
	SOUTH DAKOTA							
1	AGAR	TOWN OF AGAR	1	9	1	23,844	7,153.20	7 59
3	AKASKA	TOWN OF AKASKA	1	9	1	5,074	1,522.16	9 60
1	ARMOUR	CITY OF ARMOUR	1	9	1	25,629	7,688.70	12 61
3	ARTAS	TOWN OF ARTAS	1	9	1	4,100	1,230.00	8 60
2	BALTIC	TOWN OF BALTIC	1	9	1	27,137	8,141.10	2 60
3	BELLE FOURCHE	CITY OF BELLE FOURCHE	2	9	1	120,767	36,230.17	5 58
3	BOWDLE	TOWN OF BOWDLE	1	9	1	24,983	7,494.90	3 57
3	BRITTON	CITY OF BRITTON	1	9	1	41,721	12,516.55	11 58
3	BROOKINGS	CITY OF BROOKINGS	3	7	1	141,055	42,316.76	3 57
1	BRYANT	CITY OF BRYANT	1	9	1	19,676	5,902.74	6 61
3	BUFFALO	TOWN OF BUFFALO	1	9	1	19,352	5,805.63	8 60
2	CANOVA	TOWN OF CANOVA	1	9	1	20,804	6,241.06	5 61
3	CHANCELLOR	TOWN OF CHANCELLOR	1	9	1	11,995	3,598.63	9 57
3	CLAREMONT	TOWN OF CLAREMONT	1	9	1	26,935	8,080.73	2 60
3	CLARK	CITY OF CLARK	1	7	5	25,518	7,655.49	7 58
1	COLOME	CITY OF COLOME	1	9	1	38,835	11,650.00	6 61
3	COLTON	TOWN OF COLTON	1	9	1	35,271	10,581.35	3 57
3	CONDE	CITY OF CONDE	1	9	1	14,776	4,432.93	11 58
3	CORSICA	TOWN OF CORSICA	1	9	1	47,101	14,130.26	4 60
3	CRESBARD	CITY OF CRESBARD	1	9	1	17,286	5,186.03	10 58
3	CUSTER	CUSTER STATE PARK	1	1	7	99,099	29,729.71	6 59

3	EAGLE BUTTE	TOWN OF EAGLE BUTTE	1	9	1	6,993	2,097.90	5	57
3	EAGLE BUTTE	TOWN OF EAGLE BUTTE	1	9	2	19,230	5,768.96	10	60
3	EDGEMONT	TOWN OF EDGEMONT	1	9	1	69,843	20,953.15	3	57
3	ELK POINT	CITY OF ELK POINT	1	9	1	50,574	15,172.47	1	58
1	ELKTON	CITY OF ELKTON	1	9	1	39,146	11,743.78	7	61
1	ESTELLINE	CITY OF ESTELLINE	1	9	1	36,990	11,097.00	4	61
3	FAULKTON	CITY OF FAULKTON	1	9	1	30,078	9,023.52	9	58
1	FORT PIERRE	CITY OF FORT PIERRE	2	9	1	174,507	52,352.16	12	61
3	GARRETSON	CITY OF GARRETSON	1	9	1	23,302	6,990.68	7	57
1	GREGORY	CITY OF GREGORY	1	9	1	46,510	13,952.91	4	61
3	GROTON	CITY OF GROTON	1	9	1	47,443	14,232.95	12	57
2	HECLA	CITY OF HECLA	1	9	1	56,817	17,045.10	2	61
1	HERMOSA	CUSTER ST PK GAME LODGE	1	9	1	122,303	36,690.91	8	61
3	HOWARD	CITY OF HOWARD	1	9	1	63,138	18,941.42	2	57
3	HUMBOLDT	CITY OF HUMBOLDT	1	9	1	17,023	5,107.14	3	58
2	JEFFERSON	TOWN OF JEFFERSON	1	9	1	38,675	11,257.00	6	61
3	KENNEBEC	TOWN OF KENNEBEC	1	9	1	18,630	5,589.22	8	57
3	KIMBALL	CITY OF KIMBALL	1	9	1	22,650	6,794.89	3	59
1	LAKE PRESTON	CITY OF LAKE PRESTON	1	9	1	23,273	6,981.91	6	58
1	LENNOX	CITY OF LENNOX	1	9	1	39,940	11,982.00	7	58
3	LEOLA	TOWN OF LEOLA	1	9	1	28,216	8,464.94	4	59
2	LONG LAKE	TOWN OF LONG LAKE	1	1	1	5,337	1,600.99	9	61
1	MADISON	CITY OF MADISON	3	1	5	266,943	80,082.90	9	60
1	MCINTOSH	CITY OF MCINTOSH	1	9	1	11,897	3,569.13	8	61
3	MCLAUGHLIN	CITY OF MCLAUGHLIN	1	9	1	30,084	9,025.27	3	59
1	MELLETTE	CITY OF MELLETTE	1	9	1	24,639	7,391.70	5	59
1	MILBANK	CITY OF MILBANK	2	9	4	123,860	37,158.00	10	59
3	MISSION	TOWN OF MISSION	1	9	1	10,584	3,175.39	8	57
3	MITCHELL	CITY OF MITCHELL	4	1	2	450,000	135,000.00	3	58
3	MOBRIDGE	CITY OF MOBRIDGE	2	6	1	196,911	49,782.36	12	57
3	MORRISTOWN	TOWN OF MORRISTOWN	1	9	1	22,258	6,677.44	5	59
3	MOUND CITY	TOWN OF MOUND CITY	1	9	1	8,929	2,678.81	6	60
2	NEW UNDERWOOD	TOWN OF NEW UNDERWOOD	1	9	1	27,820	8,345.83	11	60
3	NEWELL	CITY OF NEWELL	1	9	1	19,015	5,704.45	12	57

STATUS	LOCATION	NAME OF APPLICANT	POP CODE	DESCRIP TION	TYPE CONST	ESTIMATED ELIGIBLE COST OF PROJECT	FEDERAL GRANT OFFER	PROJECT APPROVED MONTH-YEAR	
3	ONIDA	CITY OF ONIDA	1	9	4	19,935	5,980.64	3	57
3	ORIENT	TOWN OF ORIENT	1	9	1	9,153	2,746.01	10	57
3	PARKSTON	CITY OF PARKSTON	1	9	1	47,587	14,276.11	4	57
1	PIERRE	CITY OF PIERRE	4	7	1	675,851	166,356.00	12	61
1	PLANKINTON	CITY OF PLANKINTON	1	9	1	9,779	2,933.69	7	61
1	PRESHO	CITY OF PRESHO	1	9	1	33,555	10,066.64	7	59
3	REDFIELD	REDFIELD HOSP AND SCH	3	9	1	63,692	19,107.65	7	57
3	RELIANCE	TOWN OF RELIANCE	1	9	1	13,594	4,078.29	7	59
3	SANATOR	SOUTH DAKOTA STATE SAN	1	3	3	4,854	1,456.36	11	57
3	SCOTLAND	CITY OF SCOTLAND	1	9	1	20,388	6,116.61	4	59
3	SELBY	CITY OF SELBY	1	9	1	16,893	5,068.03	6	57
2	SIOUX FALLS	CITY OF SIOUX FALLS	6	3	1	179,560	53,868.26	6	59
2	SIOUX FALLS	CITY OF SIOUX FALLS	6	1	4	1,050,000	250,000.00	6	57
1	STURGIS	CITY OF STURGIS	2	9	1	122,706	36,811.88	12	61
3	SUMMIT	TOWN OF SUMMIT	1	9	1	15,405	4,621.56	3	59
1	VERMILLION	CITY OF VERMILLION	3	9	1	125,975	37,792.75	3	58
3	VOLGA	CITY OF VOLGA	1	9	1	36,528	10,958.52	1	59
3	WAGNER	CITY OF WAGNER	1	9	1	27,524	8,257.25	5	57
1	WALL	CITY OF WALL	1	9	5	21,002	6,300.74	12	61
3	WATERTOWN	CITY OF WATERTOWN	4	7	1	504,571	154,462.21	1	59
3	WEBSTER	CITY OF WEBSTER	2	9	1	37,396	11,218.66	8	59
3	WESSINGTON SP	CITY WESSINGTON SPRINGS	1	9	1	18,272	5,481.68	3	60
1	WHITE LAKE	CITY OF WHITE LAKE	1	9	1	17,452	5,235.72	8	61
3	WHITEWOOD	TOWN OF WHITEWOOD	1	9	1	19,204	5,761.25	8	57
3	WILMOT	CITY OF WILMOT	1	9	1	15,601	4,680.50	10	57
1	WOONSOCKET	CITY OF WOONSOCKET	1	9	1	51,448	15,434.00	6	59
	TENNESSEE								
3	ASHLAND CITY	TOWN OF ASHLAND CITY	1	5	1	119,476	35,842.73	7	58
2	ATHENS	CITY OF ATHENS	3	7	1	1,056,000	250,000.00	9	59

3	BLUFF CITY	CORP OF BLUFF CITY	1	5	1	120,274	36,082.17	8	57
3	BRADFORD	CITY OF BRADFORD	1	9	1	56,140	16,842.06	8	59
2	BROWNSVILLE	CITY OF BROWNSVILLE	2	1	2	400,000	120,000.00	7	60
2	CAMDEN	TOWN OF CAMDEN	1	5	1	317,500	95,250.00	3	59
2	CHATTANOOGA	CITY OF CHATTANOOGA	7	1	4	2,400,000	250,000.00	9	60
2	CHATTANOOGA	CITY OF CHATTANOOGA	7	1	1	1,900,000	250,000.00	9	57
3	CLINTON	TOWN OF CLINTON	2	9	3	5,846	1,753.90	9	57
2	COLUMBIA	CITY OF COLUMBIA	4	8	1	912,500	250,000.00	10	59
3	COVINGTON	TOWN OF COVINGTON	2	1	1	238,401	71,520.25	10	59
2	COWAN	CITY OF COWAN	1	1	1	247,880	74,364.00	7	61
2	CROSSVILLE	CITY OF CROSSVILLE	1	5	1	426,000	127,800.00	12	59
2	DAYTON	CITY OF DAYTON	2	1	2	240,000	72,000.00	7	61
1	DRESDEN	CITY OF DRESDEN	1	1	4	185,900	55,770.00	7	61
3	EAST RIDGE	CITY OF EAST RIDGE	3	6	1	794,622	238,386.54	3	57
3	ELIZABETHTON	CITY OF ELIZABETHTON	4	7	1	691,397	207,419.17	2	57
2	ERWIN	TOWN OF ERWIN	2	7	1	419,053	125,716.00	9	60
2	FAYETTEVILLE	TOWN OF FAYETTEVILLE	3	5	1	425,000	127,500.00	3	60
3	HARRIMAN	CITY OF HARRIMAN	3	5	1	994,000	250,000.00	3	57
3	HARTSVILLE	CITY OF HARTSVILLE	1	1	1	153,873	46,161.95	12	58
3	HUNTINGDON	TOWN OF HUNTINGDON	1	1	1	99,203	28,447.94	9	57
2	JONESBORO	TOWN OF JONESBORO	1	1	1	130,971	39,291.43	1	60
1	KINGSTON	CITY OF KINGSTON	1	5	1	410,000	123,000.00	8	61
1	KINGSPORT	CITY OF KINGSPORT	5	3	2	397,000	119,100.00	7	61
1	LA FOLLETTE	CITY OF LA FOLLETTE	3	1	1	660,250	198,075.00	7	61
1	LAFAYETTE	CITY OF LAFAYETTE	1	5	1	176,792	53,037.60	11	61
3	LAKE CITY	TOWN OF LAKE CITY	1	1	1	163,699	49,109.60	12	58
3	LAWRENCEBURG	CITY OF LAWRENCEBURG	3	5	1	483,424	145,027.32	5	59
1	LEBANON	CITY OF LEBANON	3	7	1	867,390	250,000.00	9	60
3	LINDEN	TOWN OF LINDEN	1	6	1	169,428	50,828.55	11	58
2	MADISONVILLE	TOWN OF MADISONVILLE	1	7	1	211,000	63,300.00	9	60
3	MARTIN	CITY OF MARTIN	2	5	1	370,552	111,165.66	8	57
3	MCKENZIE	CITY OF MCKENZIE	2	5	1	294,332	88,299.47	9	58
2	MCMINNVILLE	TOWN OF MCMINNVILLE	3	3	1	162,743	48,823.00	10	60
3	MEDINA	TOWN OF MEDINA	1	9	1	62,994	18,898.05	7	59

STATUS	LOCATION	NAME OF APPLICANT	POP CODE	DESCRIPTION	TYPE CONST	ESTIMATED ELIGIBLE COST OF PROJECT	FEDERAL GRANT OFFER	PROJECT APPROVED MONTH-YEAR
1	MILAN	CITY OF MILAN	2	6	4	740,000	222,000.00	9 60
3	MORRISTOWN	CITY OF MORRISTOWN	4	6	1	900,000	250,000.00	9 57
1	MURFREESBORO	CITY OF MURFREESBORO	4	8	2	220,000	66,000.00	11 61
2	MURFREESBORO	CITY OF MURFREESBORO	4	6	3	1,067,664	250,000.00	9 57
2	NEWBERN	CITY OF NEWBERN	1	7	1	242,446	72,733.74	4 60
2	NEWPORT	TOWN OF NEWPORT	2	5	1	940,000	250,000.00	10 59
1	ONEIDA	TOWN OF ONEIDA	1	5	1	387,000	116,100.00	3 61
3	PARSONS	TOWN OF PARSONS	1	6	1	222,567	66,770.13	8 59
2	PORTLAND	CITY OF PORTLAND	1	5	1	313,796	94,138.94	1 60
2	PULASKI	CITY OF PULASKI	3	5	1	698,936	209,680.90	9 59
3	RD BANK WT OAK	CITY RED BANK WHITE OAK	4	1	1	144,346	43,303.91	2 57
3	ROGERSVILLE	CITY OF ROGERSVILLE	2	1	1	133,000	39,900.00	3 57
1	RUTHERFORD	TOWN OF RUTHERFORD	1	9	1	61,000	18,300.00	7 61
3	SEVIERVILLE	CORP OF SEVIERVILLE	1	7	1	347,746	104,323.94	8 58
1	SHARON	TOWN OF SHARON	1	1	1	156,643	46,992.94	7 61
3	SHELBYVILLE	CITY OF SHELBYVILLE	3	3	1	26,107	7,832.15	9 58
3	SMITHVILLE	CITY OF SMITHVILLE	1	7	1	172,559	51,767.67	9 60
1	SOUTH FULTON	CITY OF SOUTH FULTON	2	1	1	517,850	155,350.00	7 61
1	SPARTA	TOWN OF SPARTA	2	5	5	407,000	122,100.00	11 61
3	SPRINGFIELD	CITY OF SPRINGFIELD	3	5	1	598,095	179,428.58	10 57
3	SWEETWATER	CITY OF SWEETWATER	2	7	1	514,903	154,470.96	10 57
2	TULLAHOMA	CITY OF TULLAHOMA	4	1	2	237,910	71,372.90	7 61
2	WAYNESBORO	CITY OF WAYNESBORO	1	3	2	52,334	15,700.08	7 61
3	WINCHESTER	CITY OF WINCHESTER	2	5	1	430,659	129,197.61	3 59
1	WOODBURY	CITY OF WOODBURY	1	1	1	222,000	66,600.00	7 61
	TEXAS							
3	ABILENE	CITY OF ABILENE	5	9	1	917,470	250,000.00	5 57
2	ALAMO	CITY OF ALAMO	2	7	4	86,900	26,070.00	9 60

3	ALTO LOMA	GALVESTON CO WC ID 8	1	1	1	60,750	18,225.00	9	59
3	ANDREWS	CITY OF ANDREWS	2	9	1	97,043	29,113.02	8	59
3	ANGLETON	CITY OF ANGLETON	2	5	1	297,292	89,187.81	9	58
1	ANNA	CITY OF ANNA	1	5	1	78,694	23,608.06	11	60
3	ANTHONY	TOWN OF ANTHONY	1	6	1	102,798	30,839.44	11	57
1	ATHENS	CITY OF ATHENS	4	5	5	500,000	150,000.00	10	61
3	AUBREY	CITY OF AUBREY	1	6	1	29,789	8,936.79	5	59
1	AZLE	TARRANT CO WATER S CORP	1	5	1	168,572	50,571.45	11	61
2	BALCH SPRINGS	DALLAS CO WATER C I DIS	3	5	1	422,843	126,852.98	1	61
3	BALLINGER	CITY OF BALLINGER	3	9	1	8,000	2,399.87	7	58
1	BASTROP	CITY OF BASTROP	2	8	2	35,000	10,500.00	11	61
2	BAY CITY	CITY OF BAY CITY	3	3	6	272,170	81,651.00	11	60
3	BAYTOWN	CITY OF BAYTOWN	4	7	5	389,200	116,760.00	7	58
3	BEEVILLE	CITY OF BEEVILLE	3	6	1	295,210	84,210.00	11	57
1	BELLMEAD	CITY OF BELLMEAD	3	7	2	102,000	30,600.00	11	61
1	BELTON	CITY OF BELTON	3	7	1	114,245	34,273.50	10	61
1	BIG SPRING	CITY OF BIG SPRING	5	5	4	1,080,000	250,000.00	11	61
3	BLUE RIDGE	TOWN OF BLUE RIDGE	1	7	1	37,174	11,152.08	9	60
2	BRIDGEPORT	CITY OF BRIDGEPORT	1	1	7	136,667	41,000.00	8	60
3	BRONTE	CITY OF BRONTE	1	7	1	44,902	13,092.00	9	60
1	BROWNSBORO	CITY OF BROWNSBORO	1	7	1	81,560	24,468.00	10	61
3	BURKBURNETT	CITY OF BURKBURNETT	2	5	1	517,795	155,030.10	9	59
3	CAMERON	CITY OF CAMERON	3	6	1	158,332	47,499.56	3	57
1	CANTON	CITY OF CANTON	1	5	1	130,773	39,231.80	10	61
3	CENTER	CITY OF CENTER	2	7	1	305,727	90,000.00	11	59
1	CHANNELVIEW	HARRIS CO WATER CID 21	3	1	2	80,000	24,000.00	11	61
3	CHICO	CITY OF CHICO	1	6	1	40,234	12,070.29	9	59
3	CLEBURNE	CITY OF CLEBURNE	4	7	2	142,255	34,830.00	11	57
3	COLLINSVILLE	CITY OF COLLINSVILLE	1	6	1	22,356	6,706.94	7	59
1	COMMERCE	CITY OF COMMERCE	3	5	1	357,199	107,159.55	11	61
2	CONROE	CITY OF CONROE	3	1	7	111,000	33,300.00	8	60
1	CROWLEY	CITY OF CROWLEY	1	7	1	102,500	30,750.00	10	61
1	CRYSTAL CITY	CITY OF CRYSTAL CITY	3	5	1	368,604	110,581.20	10	61
1	DANBURY	BRAZORIA CO W C IMP D 4	1	5	1	128,005	38,401.58	10	61
3	DE LEON	CITY OF DE LEON	1	1	1	43,853	12,825.00	11	57

STATUS	LOCATION	NAME OF APPLICANT	POP CODE	DESCRIP TION	TYPE CONST	ESTIMATED ELIGIBLE COST OF PROJECT	FEDERAL GRANT OFFER	PROJECT APPROVED MONTH-YEAR
1	DE SOTO	CITY OF DE. SOTO	1	5	1	185,000	55,500.00	11 61
3	DEER PARK	CITY OF DEER PARK	1	7	1	259,943	75,000.00	11 57
3	DENISON	CITY OF DENISON	4	5	4	854,881	250,000.00	8 58
1	DENTON	CITY OF DENTON	4	7	5	1,197,228	250,000.00	9 60
3	DICKINSON	GALVESTON CO WC ID 1	2	1	2	137,656	30,386.00	12 57
3	DIMMITT	CITY OF DIMMITT	1	1	7	50,596	15,170.70	8 60
3	DUNCANVILLE	CITY OF DUNCANVILLE	1	6	1	170,243	50,331.00	9 59
2	EARLY	TOWN OF EARLY	1	7	1	60,975	18,292.52	12 60
3	EDEN	CITY OF EDEN	1	6	1	54,937	16,481.14	7 59
3	EL PASO	PUBLIC SERVICE BOARD	7	1	2	768,230	221,100.00	3 57
3	EMORY	CITY OF EMORY	1	6	1	53,128	15,938.42	9 59
2	ENNIS	CITY OF ENNIS	3	7	1	459,500	137,850.00	11 60
1	FARMERSVILLE	CITY OF FARMERSVILLE	1	5	1	200,000	60,000.00	10 61
3	FERRIS	CITY OF FERRIS	1	7	1	114,055	34,216.54	11 57
3	FORT WORTH	TRINITY RIVER AUTH	6	6	1	6,859,152	250,000.00	8 58
3	FORT WORTH	CITY OF FORT WORTH	8	7	1	1,948,020	250,000.00	11 57
2	FREEPORT	CITY OF FREEPORT	3	5	1	750,208	225,062.55	10 58
3	FRIONA	CITY OF FRIONA	1	9	1	61,201	17,702.73	10 60
2	GARLAND	CITY OF GARLAND	4	5	1	1,906,500	250,000.00	1 60
3	GARWOOD	COLORADO CO WC ID 2	1	5	1	53,572	13,678.50	11 60
2	GATESVILLE	TEXAS YOUTH COUNCIL	1	1	5	40,939	12,281.70	11 60
1	GATESVILLE	CITY OF GATESVILLE	3	5	5	383,699	115,109.55	11 61
3	GIDDINGS	CITY OF GIDDINGS	2	6	3	55,258	16,230.00	3 57
3	GRANBURY	CITY OF GRANBURY	1	5	1	164,953	49,041.60	11 57
3	GRAND PRAIRIE	CITY OF GRAND PRAIRIE	4	2	6	302,130	77,160.30	7 58
2	GROESBECK	CITY OF GROESBECK	1	1	1	90,550	27,165.00	7 59
1	GROVES	CITY OF GROVES	4	5	1	1,121,134	250,000.00	11 61
3	HALLETTSVILLE	CITY OF HALLETTSVILLE	1	1	1	109,508	28,650.00	3 57
3	HALTOM CITY	CITY OF HALTOM CITY	3	3	1	164,539	49,361.83	9 60
3	HARLINGEN	CITY OF HARLINGEN	4	5	1	821,891	246,567.26	10 58
3	HEMPHILL	CITY OF HEMPHILL	1	6	1	125,293	37,587.77	8 60
3	HEMPSTEAD	CITY OF HEMPSTEAD	1	6	1	127,067	33,540.00	7 59

3	HENDERSON	CITY OF HENDERSON	3	6	1	452,770	135,831.04	11	57
3	HEREFORD	CITY OF HEREFORD	3	1	2	47,962	14,349.00	11	57
1	HILLSBORO	CITY OF HILLSBORO	3	1	2	39,600	11,880.00	10	61
3	HITCHCOCK	GALVESTON CO WC ID 7	2	5	1	364,158	109,247.50	7	58
1	HOUSTON	CITY OF HOUSTON	9	7	5	1,157,240	236,270.02	12	61
2	HOUSTON	CITY OF HOUSTON	9	7	4	999,000	250,000.00	10	58
1	HUBBARD	CITY OF HUBBARD	1	5	5	131,000	39,300.00	11	61
2	IOWA PARK	CITY OF IOWA PARK	1	1	6	113,299	33,989.00	9	60
2	JOSHUA	JOHNSON CO FR WATER SD1	1	5	1	106,489	31,946.70	10	61
3	KAUFMAN	CITY OF KAUFMAN	2	1	2	139,093	41,727.95	4	60
3	KELLER	N TARRANT CO MUN DIST	1	9	1	17,848	5,354.50	4	60
3	KEMAH	GALVESTON CO WC ID 12	2	7	2	123,826	37,147.80	11	60
2	KENNEDALE	CITY OF KENNEDALE	1	7	1	142,389	42,700.00	8	60
1	KLEBERG	DALLAS CO W C I DIST 7	2	7	5	218,800	65,640.00	12	61
1	KRUM	CITY OF KRUM	1	7	1	56,000	16,800.00	10	61
2	LA MARQUE	CITY OF LA MARQUE	3	3	5	351,555	105,466.45	9	60
1	LA PORTE	CITY OF LA PORTE	2	1	2	35,700	10,710.00	10	61
3	LAKE WORTH	LAKE WORTH VILLAGE	1	3	1	195,825	58,747.59	9	60
1	LAMESA	CITY OF LAMESA	4	7	1	589,917	176,975.04	10	61
1	LEONARD	CITY OF LEONARD	1	7	1	47,997	14,398.75	12	61
3	LEWISVILLE	CITY OF LEWISVILLE	1	6	1	183,858	55,157.06	3	57
3	LIBERTY	CITY OF LIBERTY	2	1	1	108,725	30,900.00	3	57
1	LONE OAK	CITY OF LONE OAK	1	7	1	41,100	12,330.00	11	61
2	LUBBOCK	CITY OF LUBBOCK	6	1	7	587,000	176,100.00	9	60
3	LUFKIN	CITY OF LUFKIN	4	7	5	953,656	250,000.00	9	59
2	LULING	CITY OF LULING	2	1	4	88,925	26,160.00	7	61
1	MARBLE FALLS	MARBLE FALLS WCID 1	1	5	1	334,000	100,200.00	11	61
3	MARSHALL	CITY OF MARSHALL	4	1	1	464,418	102,300.00	3	57
3	MATHIS	CITY OF MATHIS	2	6	1	100,274	30,082.28	3	57
1	MAUD	CITY OF MAUD	1	5	1	76,667	23,000.00	12	61
3	MCALLEN	CITY OF MCALLEN	4	1	2	294,766	88,429.73	11	57
2	MCLENNAN CO	MCLENNAN CO WATER CID 3	1	3	2	195,995	58,798.55	11	61
3	MERCEDES	CITY OF MERCEDES	4	1	4	127,628	36,000.00	3	57
3	MESQUITE	CITY OF MESQUITE	1	6	1	832,705	249,811.55	11	57

STATUS	LOCATION	NAME OF APPLICANT	POP CODE	DESCRIP TION	TYPE CONST	ESTIMATED ELIGIBLE COST OF PROJECT	FEDERAL GRANT OFFER	PROJECT APPROVED MONTH-YEAR
1	MEXIA	CITY OF MEXIA	3	1	1	100,000	30,000.00	9 60
1	MISSION	CITY OF MISSION	4	1	2	280,000	84,000.00	10 61
2	NEDERLAND	CITY OF NEDERLAND	2	7	5	680,193	204,057.90	9 59
3	NEW BRAUNFELS	CITY OF NEW BRAUNFELS	4	6	2	274,042	75,000.00	3 57
3	OLNEY	CITY OF OLNEY	2	1	6	106,660	31,800.00	9 60
3	ORANGE	CITY OF ORANGE	4	5	1	942,929	222,060.00	12 57
3	PARIS	CITY OF PARIS	4	3	1	59,683	17,904.75	7 59
1	PEARLAND	BRAZORIA CO W C IMP D 3	1	1	2	35,000	10,500.00	10 61
2	PERRYTON	CITY OF PERRYTON	2	7	1	288,925	86,677.50	9 60
2	PETROLIA	CITY OF PETROLIA	1	5	1	36,000	10,800.00	11 61
3	PINELAND	CITY OF PINELAND	1	1	1	110,034	33,010.29	11 57
3	PLANO	CITY OF PLANO	1	7	1	483,381	98,670.00	9 59
1	PORT ARANSAS	NUECES CO W C IMP D #4	1	7	1	331,263	99,378.87	10 61
3	PORT LAVACA	CITY OF PORT LAVACA	3	1	5	116,911	30,398.63	11 57
3	PORT ARTHUR	CITY OF PORT ARTHUR	6	5	1	1,501,110	250,000.00	7 59
1	POST	CITY OF POST	2	3	1	70,000	21,000.00	12 61
3	RICHMOND	CITY OF RICHMOND	1	1	1	54,879	16,463.77	3 57
1	ROSENBERG	CITY OF ROSENBERG	3	7	5	500,000	150,000.00	10 61
1	ROWLETT	TOWN OF ROWLETT	1	3	1	98,806	29,641.84	11 61
1	RUSK	TOWN OF RUSK	2	1	2	145,751	43,725.00	10 61
3	SAN ANGELO	CITY OF SAN ANGELO	6	6	1	1,248,562	250,000.00	3 57
3	SAN MARCOS	CITY OF SAN MARCOS	3	6	4	144,159	43,247.85	3 57
3	SEGUIN	CITY OF SEGUIN	3	5	1	516,493	140,164.50	7 59
2	SHERMAN	CITY OF SHERMAN	4	1	1	714,345	214,303.50	4 61
3	SILSBEE	CITY OF SILSBEE	2	5	1	314,856	94,456.90	8 58
3	SNYDER	CITY OF SNYDER	4	9	5	24,771	7,431.36	8 58
3	SOUR LAKE	CITY OF SOUR LAKE	1	6	1	43,225	12,967.50	9 59
1	SPRINGTOWN	CITY OF SPRINGTOWN	1	7	1	45,500	13,650.00	10 61
3	SWEETWATER	CITY OF SWEETWATER	4	6	1	1,013,023	250,000.00	3 57
3	TEMPLE	CITY OF TEMPLE	5	7	1	785,403	231,381.54	8 58
3	TEXAS CITY	CITY OF TEXAS CITY	4	2	2	122,557	36,767.13	3 57

1	THORNDALE	CITY OF THORNDALE	1	1	2	30,000	9,000.00	11	61
3	THREE RIVERS	CITY OF THREE RIVERS	1	1	1	81,408	24,406.50	9	60
3	THROCKMORTON	CITY OF THROCKMORTON	1	6	1	43,609	9,600.00	7	59
3	TOMBALL	CITY OF TOMBALL	1	1	2	40,635	12,190.64	8	60
3	UVALDE	CITY OF UVALDE	3	1	2	54,460	16,163.10	3	57
3	VAN ALYSTYNE	CITY OF VAN ALYSTYNE	1	6	2	77,006	23,101.84	11	57
1	WAXAHACHIE	CITY OF WAXAHACHIE	4	5	4	424,000	127,200.00	10	61
3	WEST COLUMBIA	CITY OF WEST COLUMBIA	1	5	7	169,116	50,734.76	12	59
3	WHARTON	CITY OF WHARTON	2	5	1	271,285	81,385.40	3	57
3	WOLFE CITY	CITY OF WOLFE CITY	1	1	1	42,871	12,861.29	3	57
1	WOODSBORO	TOWN OF WOODSBORO	1	9	4	100,000	30,000.00	10	61
3	YOAKUM	CITY OF YOAKUM	3	7	4	214,926	64,290.00	11	57
	UTAH								
3	AMERICAN FORK	CITY OF AMERICAN FORK	3	1	2	17,360	5,207.96	1	59
2	BOUNTIFUL	S DAVIS CO SEWER IMP D	3	1	1	1,174,000	250,000.00	1	61
1	BOUNTIFUL	S DAVIS CO S IMP DIST	5	3	2	91,620	27,486.00	12	61
2	BRIGHAM CITY	CITY OF BRIGHAM CITY	4	1	2	553,434	166,030.00	7	61
3	COTTONWOOD SD	COTTONWOOD SEW DIST	3	6	1	611,192	183,357.66	9	57
2	DAVIS COUNTY	S DAVIS CO SEWER IMP D	3	5	1	1,614,000	250,000.00	7	60
3	DAVIS COUNTY	N DAVIS COUNTY DIST	4	1	1	1,212,847	250,000.00	9	57
3	GRANGER HUNTER	GRANGER HUNTER IMP DIST	3	9	1	737,468	221,240.40	10	57
3	KANAB	CITY OF KANAB	1	5	1	157,860	47,357.90	2	58
3	KAYSVILLE	CENTRAL DAVIS CO S D	3	5	1	915,129	250,000.00	5	60
3	KEARNS	KEARNS IMPROVEMENT DIST	4	1	3	38,847	11,654.07	3	59
2	MAGNA	MAGNA WATER CO IMP DIST	3	1	1	607,390	182,216.95	7	61
3	MIDVALE CITY	MIDVALE CITY	2	1	2	286,626	85,987.80	12	59
3	MONTICELLO	CITY OF MONTICELLO	1	1	1	184,289	55,286.75	5	58
2	MURRAY	CITY OF MURRAY	3	1	3	271,944	81,583.20	1	61
3	OREM	CITY OF OREM	3	1	1	897,900	250,000.00	7	58
2	S SALT LAKE	CITY OF SOUTH SALT LAKE	7	1	2	253,000	75,900.00	8	61
3	SALINA	CITY OF SALINA	1	7	1	284,859	85,457.50	3	60
3	SALT LAKE CITY	SALT LAKE CITY SSD	6	1	5	869,950	250,000.00	5	59

STATUS	LOCATION	NAME OF APPLICANT	POP CODE	DESCRIPTION	TYPE CONST	ESTIMATED ELIGIBLE COST OF PROJECT	FEDERAL GRANT OFFER	PROJECT APPROVED MONTH-YEAR	
2	SANDY CITY	SANDY CITY CORPORATION	1	1	1	660,000	198,000.00	10	60
3	SPANISH FORK	CITY OF SPANISH FORK	3	7	1	318,085	95,425.59	8	58
3	VERNAL	VERNAL CITY CORP	2	5	1	313,219	93,965.55	9	57
3	WEBER COUNTY	CENTRAL WEBER DIST	6	1	1	3,635,610	250,000.00	9	57
	VERMONT								
3	BARRE	CITY OF BARRE	4	5	1	521,961	156,588.21	4	58
1	BELLOWS FALLS	VILLAGE BELLOWS FALLS	2	5	1	644,000	193,200.00	1	60
3	BENNINGTON	TOWN OF BENNINGTON	3	7	1	1,270,000	250,000.00	2	58
2	BRANDON	TOWN OF BRANDON	1	5	1	698,950	209,684.98	7	59
1	BURLINGTON	CITY OF BURLINGTON	5	3	1	65,000	19,500.00	12	61
1	BURLINGTON	CITY OF BURLINGTON	5	7	1	627,000	188,100.00	12	61
3	BURLINGTON	CITY OF BURLINGTON	5	7	1	613,443	184,033.03	3	57
1	ESSEX JUNCTION	VILLAGE ESSEX JUNCTION	3	5	1	619,700	185,910.00	6	61
2	JOHNSON	JOHNSON TEACHERS COLLEG	1	1	1	30,000	9,000.00	7	61
2	MANCHESTER	TOWN OF MANCHESTER	1	7	1	299,200	89,760.00	2	59
2	PROCTOR	VILLAGE OF PROCTOR	1	5	1	522,130	156,639.00	1	60
2	RANDOLPH	VILLAGE OF RANDOLPH	1	7	1	274,000	82,200.00	3	59
1	RUTLAND	CITY OF RUTLAND	4	5	1	989,000	250,000.00	1	60
3	S BURLINGTON	FIRE DISTRICT NO 4	1	6	3	124,358	37,307.46	2	57
3	SHELBURNE	TOWN OF SHELBURNE	1	1	1	54,000	16,200.00	12	58
3	SPRINGFIELD	TOWN OF SPRINGFIELD	2	7	1	832,603	249,780.81	5	58
2	ST ALBANS	CITY OF ST ALBANS	3	1	3	668,805	200,641.50	9	58
1	WINDSOR	VILLAGE OF WINDSOR	2	7	1	615,000	184,500.00	12	61
	VIRGINIA								
1	ALLEGHANY CO	ALLEGHANY COUNTY	1	3	1	11,533	3,459.00	4	60
3	ARLINGTON CO	ARLINGTON COUNTY	7	1	2	511,781	139,000.00	9	59

3	ARLINGTON CO	ARLINGTON COUNTY	7	1	3	350,373	77,071.00	9	57
3	BEDFORD	CITY OF BEDFORD	2	3	1	215,783	39,087.00	1	58
2	BRENTWOOD	NORFOLK CO BOARD OF SUP	1	3	1	58,000	16,500.00	12	60
3	BRIDGEWATER	TOWN OF BRIDGEWATER	1	7	1	150,789	45,236.72	6	59
3	BUCHANAN	TOWN OF BUCHANAN	1	7	1	147,243	39,679.00	3	59
3	BUENA VISTA	CITY OF BUENA VISTA	3	1	1	197,883	49,853.00	9	57
3	CHARLOTTESVL	CITY OF CHARLOTTESVILLE	5	7	1	1,039,553	212,284.00	1	58
3	CHATHAM	TOWN OF CHATHAM	1	7	1	242,246	72,674.04	4	59
1	CLEARWATER PK	ALLEGHANY CO BD OF SUP	1	9	1	23,100	3,470.00	12	61
3	CLIFTONDALE PK	ALLEGHANY COUNTY	1	1	1	34,671	2,706.00	1	58
3	CLIFTON FORGE	CITY OF CLIFTON FORGE	3	1	1	282,400	54,221.00	6	57
3	COLONIAL BEACH	TOWN OF COLONIAL BEACH	1	1	1	266,707	58,280.00	6	57
3	CREWE	TOWN OF CREWE	1	1	1	124,114	16,710.00	6	57
3	DANVILLE	CITY OF DANVILLE	5	3	1	1,021,450	236,175.00	11	58
3	DANVILLE	CITY OF DANVILLE	5	7	1	1,103,977	183,298.00	12	57
3	DOGUE CREEK	COUNTY OF FAIRFAX	3	1	2	159,419	38,248.00	12	57
3	DRAKES BRANCH	TOWN OF DRAKES BRANCH	1	6	1	18,609	5,531.00	9	57
3	DUMFRIES SD	PRINCE WILLIAM COUNTY	1	1	1	101,587	20,471.00	2	58
3	EDINBURG	TOWN OF EDINBURG	1	7	1	114,442	33,180.00	1	59
3	ELKTON	ELKTON WATER ST SEW COM	1	1	1	42,761	6,109.00	6	57
3	ETTRICK	ETTRICK SAN DISTRICT	1	3	1	25,888	7,766.60	2	58
3	FAIRFAX	TOWN OF FAIRFAX	1	1	3	682,087	77,071.00	9	57
1	FAIRFAX CO	COUNTY OF FAIRFAX	3	3	1	76,188	21,700.00	1	61
3	FAIRVIEW HTS	ALLEGHANY COUNTY	1	7	1	14,378	4,313.57	3	58
3	FALMOUTH S D	STAFFORD CO BD OF SUP	1	6	1	41,539	12,461.86	11	58
3	FARMVILLE	TOWN OF FARMVILLE	2	9	1	65,358	19,569.00	2	58
2	FEATHERSTONE	PRINCE WILLIAM COUNTY	1	7	1	413,232	78,024.00	9	58
3	FRONT ROYAL	TOWN OF FRONT ROYAL	3	3	1	89,545	11,892.00	12	57
3	GALAX	CITY OF GALAX	3	7	1	431,306	58,247.00	1	58
3	GLASGOW	TOWN OF GLASGOW	1	5	1	56,482	16,944.67	6	57
3	GLOUCESTER CO	GLOUCESTER COUNTY	1	5	4	120,376	35,083.00	3	59
3	GREAT BRIDGE	NORFOLK CO BOARD OF SUP	1	1	1	173,876	50,600.00	11	60
2	HAMPTON	HAMPTON RDS SAN DIS COM	1	3	1	201,011	43,700.00	1	61
2	HAMPTON	HAMPTON RDS SAN DIS COM	1	3	2	78,000	20,600.00	3	61
2	HAMPTON	HAMPTON RDS SAN DIS COM	3	3	1	106,000	31,800.00	12	60

STATUS	LOCATION	NAME OF APPLICANT	POP CODE	DESCRIP TION	TYPE CONST	ESTIMATED ELIGIBLE COST OF PROJECT	FEDERAL GRANT OFFER	PROJECT APPROVED MONTH-YEAR
3	HAMPTON ROADS	HAMPTON RDS SAN DIS COM	3	3	1	94,792	28,437.64	11 59
3	HAMPTON ROADS	HAMPTON RDS SAN DIS COM	3	3	1	72,589	16,600.00	8 59
3	HERNDON	TOWN OF HERNDON	1	1	3	124,617	11,654.00	9 57
3	HOLMES RUN	COUNTY OF FAIRFAX	6	3	4	380,448	65,347.00	1 58
3	HOPEWELL	CITY OF HOPEWELL	4	1	1	458,897	77,071.00	2 58
3	IRON GATE	TOWN OF IRON GATE	1	7	1	66,052	8,941.00	6 58
3	KENBRIDGE	TOWN OF KENBRIDGE	1	1	4	55,600	12,263.00	2 59
3	L HUNTING CRK	COUNTY OF FAIRFAX	6	1	2	208,585	35,350.00	2 58
3	LEBANON	TOWN OF LEBANON	1	1	1	147,252	25,596.00	5 58
3	LEESBURG	TOWN OF LEESBURG	1	6	2	66,681	12,700.00	5 60
3	LITTLE CREEK	HAMPTON RDS SAN DIS COM	4	3	1	100,510	21,000.00	10 60
3	LOUISA	TOWN OF LOUISA	1	5	1	102,200	21,739.00	4 58
3	MADISON HTS	AMHERST CO BOARD OF SUP	1	6	1	55,918	16,775.55	10 59
2	MARION	TOWN OF MARION	3	7	1	512,405	142,595.00	1 61
3	MONTEREY	TOWN OF MONTEREY	1	7	1	43,548	7,428.00	7 59
3	MOUNT JACKSON	TOWN OF MOUNT JACKSON	1	7	1	73,809	15,658.00	4 58
3	NEW CASTLE	TOWN OF NEW CASTLE	1	7	1	30,141	9,042.34	4 58
1	NEW MARKET	TOWN OF NEW MARKET	1	1	1	110,000	26,471.00	4 61
2	NEWPORT NEWS	CITY OF NEWPORT NEWS	5	3	1	242,829	42,000.00	12 60
3	NEWPORT NEWS	HAMPTON RDS SAN DIS COM	7	1	2	251,839	36,994.00	9 57
2	NORFOLK	HAMPTON RDS SAN DIS COM	1	3	1	104,000	21,800.00	3 61
2	NORFOLK CO	HAMPTON RDS SAN DIS COM	1	3	1	64,000	15,200.00	3 61
1	NORFOLK	HAMPTON RDS SAN DIS COM	6	3	3	69,000	17,500.00	3 61
3	OCCOQUAN	PRINCE WILLIAM COUNTY	1	1	1	197,727	28,790.00	12 57
3	ONANCOCK	TOWN OF ONANCOCK	1	7	1	164,724	47,860.00	6 59
3	PIMMIT HILLS	COUNTY OF FAIRFAX	4	3	1	78,197	23,459.12	9 60
3	PIMMIT RUN	COUNTY OF FAIRFAX	5	3	1	607,714	170,913.00	10 59
1	PORTSMOUTH	CITY OF PORTSMOUTH	6	3	1	444,711	126,600.00	7 61
3	PULASKI	TOWN OF PULASKI	3	3	1	1,024,652	250,000.00	10 58
2	RADFORD	CITY OF RADFORD	1	7	1	881,005	211,000.00	1 60

2	RICHLANDS	TOWN OF RICHLANDS	2	5	1	591,209	152,000.00	2	60
3	RICHMOND	CITY OF RICHMOND	7	1	2	1,495,028	77,071.00	6	57
3	RICHMOND	CITY OF RICHMOND	7	3	1	283,964	48,401.00	7	58
3	ROANOKE CO	ROANOKE COUNTY	2	3	1	35,386	10,260.00	7	59
3	ROANOKE	CITY OF ROANOKE	6	1	2	565,814	141,707.00	1	59
3	SALEM	TOWN OF SALEM	3	3	1	153,369	46,010.81	2	60
3	SELMA	ALLEGHANY COUNTY	3	1	1	28,210	8,463.00	6	57
3	SOUTH BOSTON	TOWN OF SOUTH BOSTON	3	1	1	306,226	91,867.00	10	59
2	STAUNTON	CITY OF STAUNTON	4	1	3	691,085	150,000.00	10	59
1	STERLING	LOUDOUN COUNTY SAN AUTH	1	7	1	315,600	94,680.00	12	60
1	STRASBURG	TOWN OF STRASBURG	1	7	1	189,845	40,200.00	10	59
3	SUFFOLK	CITY OF SUFFOLK	4	7	1	711,635	178,128.00	1	58
1	TUCKAHOE SD A	HENRICO CO BD OF SUP	5	3	2	810,000	144,600.00	12	61
3	VIENNA	TOWN OF VIENNA	1	1	2	127,047	38,114.36	1	60
3	WARM SPRINGS	WARM SPRINGS SAN DIST	1	7	1	27,276	8,183.00	7	57
2	WARRENTON	TOWN OF WARRENTON	1	3	1	59,700	15,720.00	11	60
3	WARRENTON	TOWN OF WARRENTON	1	1	1	326,800	82,589.00	6	58
1	WASHTN DIST	NORFOLK CO BOARD OF SUP	2	7	1	272,800	76,500.00	12	60
2	WILLIAMSBURG	JAMES CITY SNTRY DIST 1	1	3	1	62,929	9,000.00	9	60
3	WILLIAMSBURG	CITY OF WILLIAMSBURG	3	1	3	426,264	116,798.00	1	58
3	WINCHESTER	CITY OF WINCHESTER	4	1	2	58,524	17,557.24	9	60
1	WOODBRIDGE	PRINCE WILLIAM CO BD SP	1	5	1	478,200	83,000.00	4	60
2	WOODBRIDGE	PRINCE WILLIAM CO BD SP	2	1	2	508,550	36,200.00	4	61
3	WOODSTOCK	TOWN OF WOODSTOCK	1	1	1	116,878	12,520.00	1	58
2	YORK COUNTY	YORK COUNTY S D NO 1	2	7	1	305,000	66,600.00	8	60
	WASHINGTON								
3	ABERDEEN	CITY OF ABERDEEN	4	5	1	1,754,295	250,000.00	9	57
3	ARLINGTON	TOWN OF ARLINGTON	1	5	1	74,623	22,386.86	5	58
3	ASOTIN	TOWN OF ASOTIN	1	5	4	76,672	23,001.71	10	57
3	BATTLE GROUND	TOWN OF BATTLE GROUND	1	9	1	73,628	22,080.00	9	58
3	BELLEVUE	BELLEVUE SEWER DIST	1	1	7	166,018	49,805.28	3	57
2	BELLINGHAM	CITY OF BELLINGHAM	5	1	2	563,223	159,000.00	6	60
3	BOTHELL	TOWN OF BOTHELL	1	6	1	134,296	40,288.87	3	57

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3	CAMAS	CITY OF CAMAS	2	4	1	46,277	13,883.38	9 57
2	CASHMERE	TOWN OF CASHMERE	1	1	1	175,005	52,500.00	10 60
1	CATHLAMET	TOWN OF CATHLAMET	1	5	1	63,000	18,900.00	12 59
3	CENTRALIA	CITY OF CENTRALIA	3	7	4	98,597	29,579.00	9 58
3	CHEHALIS	CITY OF CHEHALIS	3	1	2	30,164	9,049.25	12 57
2	CHENEY	CITY OF CHENEY	2	7	1	72,000	20,510.00	11 60
3	CHEWELAH	CITY OF CHEWELAH	1	9	1	95,057	28,510.00	11 59
3	COSMOPOLIS	TOWN OF COSMOPOLIS	1	1	1	157,634	47,290.00	10 59
3	COUPEVILLE	TOWN OF COUPEVILLE	1	7	1	63,925	16,428.00	12 58
3	COWICHE	COWICHE SEWER DIST	1	9	1	15,681	4,440.00	4 57
3	DAYTON	CITY OF DAYTON	2	3	3	18,726	5,617.74	9 57
3	DES MOINES	DES MOINES SEW DIST	1	6	1	149,013	44,704.00	10 57
3	EDMONDS	CITY OF EDMONDS	1	5	5	287,318	73,950.00	2 59
3	EDMONDS	CITY OF EDMONDS	1	6	1	203,654	59,944.44	3 57
3	ELMA	TOWN OF ELMA	1	6	3	65,279	18,900.00	1 57
3	EVERETT	TOWN OF EVERETT	5	9	1	2,882,000	250,000.00	12 58
1	FEDERAL WAY	LAKEHAVEN SEWER DIST	2	1	1	439,000	131,700.00	9 61
3	GRANDVIEW	CITY OF GRANDVIEW	2	9	1	288,479	86,540.00	5 59
3	GRANITE FALLS	TOWN OF GRANITE FALLS	1	1	1	47,044	12,600.00	12 58
3	GRAYS HARBOR	GRAYS HARBOR CO SID	6	9	1	24,137	7,241.16	1 58
3	HARRAH	TOWN OF HARRAH	1	6	1	27,100	8,130.00	4 57
3	HAZEL DELL	HAZEL DELL SEW DIST	1	9	1	80,963	24,280.00	7 60
3	HOQUIAM	CITY OF HOQUIAM	4	9	1	720,386	212,880.00	3 57
2	ILWACO	TOWN OF ILWACO	1	5	1	125,200	37,560.00	8 57
3	IONE	TOWN OF IONE	1	9	1	50,479	15,143.00	4 59
1	KELSO	CITY OF KELSO	3	4	2	27,530	8,250.00	6 61
1	KENNEWICK	CITY OF KENNEWICK	4	1	2	71,600	21,480.00	8 61
3	KENT	CITY OF KENT	2	2	1	106,711	32,010.00	9 59
2	LAKE CHELAN	LAKE CHELAN SEWER DIST	1	3	1	50,259	12,855.00	1 60
3	LAKE HILLS	LAKE HILLS SEWER DIST	2	6	1	272,004	73,530.00	10 58

1	LANGLEY	TOWN OF LANGLEY	1	5	1	50,800	15,240.00	9 60
2	LONGVIEW	BEACON HILL SEW DIST	1	3	1	89,794	24,680.00	2 61
3	MARYSVILLE	TOWN OF MARYSVILLE	1	9	1	187,715	51,778.00	12 58
3	MONTESANO	CITY OF MONTESANO	1	2	1	115,897	34,769.34	2 57
3	MOUNTLAKE TER	CITY MOUNTLAKE TERRACE	3	3	1	445,803	115,560.00	2 59
3	OLYMPIA	CITY OF OLYMPIA	4	3	2	42,557	12,760.00	6 61
3	OLYMPIA	CITY OF OLYMPIA	4	3	1	6,610	1,938.70	9 58
2	OTHELLO	CITY OF OTHELLO	2	7	5	63,807	16,800.00	12 60
3	PALOUSE	CITY OF PALOUSE	1	5	1	80,295	24,088.80	2 57
1	PORT ORCHARD	TOWN OF PORT ORCHARD	2	5	1	327,600	98,280.00	2 61
3	PROSSER	CITY OF PROSSER	2	6	7	132,736	39,820.67	8 58
3	QUINCY	TOWN OF QUINCY	1	9	1	95,674	21,960.00	10 57
3	RAINIER VISTA	RAINIER VISTA SEWER DIS	2	6	1	240,030	60,804.00	12 57
1	RAYMOND	CITY OF RAYMOND	2	9	1	103,200	30,960.00	1 60
[illegible]	Redmond	TOWN OF REDMOND	1	9	1	85,682	25,704.76	10 57
3	REPUBLIC	TOWN OF REPUBLIC	1	9	1	42,899	12,869.67	8 57
3	RIDGEFIELD	TOWN OF RIDGEFIELD	1	6	1	72,410	21,720.00	12 58
3	ROCKFORD	TOWN OF ROCKFORD	1	4	1	41,643	12,490.00	9 59
1	ROSALIA	TOWN OF ROSALIA	1	9	1	28,943	8,680.00	8 61
3	SEATTLE	CITY OF SEATTLE	8	1	2	663,349	199,004.83	2 57
3	SEDRO WOOLLEY	CITY OF SEDRO WOOLLEY	2	6	1	64,752	18,992.39	1 57
3	SNOHOMISH	CITY OF SNOHOMISH	2	5	1	384,995	99,334.50	4 58
2	SPOKANE	CITY OF SPOKANE	7	1	2	918,295	233,400.00	7 61
3	SPOKANE	CITY OF SPOKANE	7	3	1	883,705	250,000.00	2 60
3	SUMNER	CITY OF SUMNER	2	1	1	157,640	47,292.29	2 57
3	SUNNYSIDE	CITY OF SUNNYSIDE	2	1	2	316,600	94,980.00	11 57
2	TACOMA	CITY OF TACOMA	7	7	1	1,032,699	250,000.00	8 60
3	TIETON	TOWN OF TIETON	1	1	1	16,423	4,926.91	2 57
1	TOLEDO	TOWN OF TOLEDO	1	9	1	39,500	11,850.00	2 61
3	VADER	TOWN OF VADER	1	9	1	25,323	7,596.94	9 58
3	VANCOUVER	CITY OF VANCOUVER	5	3	1	71,509	21,452.00	2 60
2	WALLA WALLA	CITY OF WALLA WALLA	4	1	4	576,200	172,860.00	11 60
3	WARDEN	TOWN OF WARDEN	1	9	2	15,028	4,508.00	5 59
1	WEST RICHLAND	CITY OF WEST RICHLAND	1	9	1	100,247	30,070.00	12 60
3	YAKIMA	CITY OF YAKIMA	5	1	2	196,018	58,805.48	9 57

STATUS	LOCATION	NAME OF APPLICANT	POP CODE	DESCRIP TION	TYPE CONST	ESTIMATED ELIGIBLE COST OF PROJECT	FEDERAL GRANT OFFER	PROJECT APPROVED MONTH-YEAR
	WEST VIRGINIA							
1	BENWOOD	CITY OF BENWOOD	2	7	1	625,000	187,500.00	11 60
1	BETHANY	TOWN OF BETHANY	1	9	1	74,846	22,453.00	10 61
2	BUCKHANNON	CITY OF BUCKHANNON	3	7	1	781,722	234,516.00	10 59
1	CEDAR GROVE	TOWN OF CEDAR GROVE	1	1	1	170,100	51,030.00	7 61
2	DUNBAR	CITY OF DUNBAR	3	7	1	796,022	220,000.00	10 58
1	EAST BANK	TOWN OF EAST BANK	1	7	1	124,055	37,216.00	12 61
3	ELKINS	CITY OF ELKINS	3	7	1	835,071	250,000.00	5 58
1	GLASGOW	TOWN OF GLASGOW	1	7	1	127,580	38,274.00	11 60
3	GLEN DALE	VILLAGE OF GLEN DALE	1	1	2	44,731	13,360.00	7 58
1	HARRISVILLE	TOWN OF HARRISVILLE	1	7	1	111,300	33,390.00	10 61
1	HINTON	CITY OF HINTON	3	7	1	565,802	141,100.00	1 60
1	HURRICANE	TOWN OF HURRICANE	1	7	1	183,500	46,458.00	11 60
3	KENOVA	CITY OF KENOVA	2	1	1	172,943	51,883.14	8 58
3	MADISON	CITY OF MADISON	1	7	4	206,717	62,015.24	4 58
1	MARMET	TOWN OF MARMET	2	5	1	342,756	102,826.00	1 60
1	MONONGAH	TOWN OF MONONGAH	1	7	1	203,157	60,086.00	12 61
1	MOOREFIELD	TOWN OF MOOREFIELD	1	7	1	155,550	44,565.00	4 58
3	MOUNDSVILLE	CITY OF MOUNDSVILLE	4	7	1	180,043	54,013.00	1 58
3	MOUNT HOPE	CITY OF MOUNT HOPE	2	7	1	259,445	77,833.60	8 58
2	MULLENS	CITY OF MULLENS	2	7	1	273,667	82,100.00	6 59
1	NEW CUMBERLND	CITY OF NEW CUMBERLAND	1	7	1	226,680	68,004.00	3 60
1	NEW HAVEN	TOWN OF NEW HAVEN	1	5	1	166,000	49,800.00	11 61
3	NEW MARTINSVL	CITY NEW MARTINSVILLE	2	7	1	602,337	180,000.00	1 58
3	NITRO	CITY OF NITRO	2	7	1	639,600	172,648.00	1 59
3	PADEN CITY	TOWN OF PADEN CITY	2	7	1	225,846	61,500.00	8 58
1	PHILIPPI	CITY OF PHILIPPI	1	7	1	340,234	102,070.00	10 61
1	PIEDMONT	CITY OF PIEDMONT	2	3	1	116,000	34,800.00	11 60
2	PINEVILLE	CENTER PUB SERVICE DIST	3	5	1	411,649	120,454.00	1 60
3	PRINCETON	CITY OF PRINCETON	3	1	2	138,079	41,423.73	2 58

3	RAVENSWOOD	TOWN OF RAVENSWOOD	1	7	1	164,151	49,245.37	12	57
2	RIPLEY	TOWN OF RIPLEY	1	4	1	131,266	39,379.00	12	59
1	RIVESVILLE	TOWN OF RIVESVILLE	1	5	1	233,838	70,151.00	5	61
2	S CHARLESTON	SOUTH CHARLESTON	4	3	1	1,083,879	250,000.00	9	60
2	SISTERSVILLE	CITY OF SISTERSVILLE	1	5	1	244,000	73,200.00	10	59
1	ST ALBANS	FAIRVIEW PUB SER DIST	1	7	1	114,479	31,643.00	5	60
2	ST ALBANS	CITY OF ST ALBANS	3	7	1	836,573	250,000.00	10	60
3	VIENNA	CITY OF VIENNA	3	7	1	409,087	122,726.26	9	58
3	WEIRTON	CITY OF WEIRTON	4	1	1	1,448,061	250,000.00	2	58
3	WESTON	CITY OF WESTON	3	7	1	783,362	235,008.75	9	57
2	WHEELING	CITY OF WHEELING	6	6	1	1,755,327	250,000.00	7	58
1	WHITESVILLE	TOWN OF WHITESVILLE	1	7	1	98,025	29,407.00	2	58
3	WILLIAMSTOWN	CITY OF WILLIAMSTOWN	1	7	1	196,192	58,857.64	8	57
2	WILLIAMSON	CITY OF WILLIAMSON	3	5	1	1,043,352	250,000.00	10	57
	WISCONSIN								
3	ABBOTSFORD	VILLAGE OF ABBOTSFORD	1	6	1	160,000	48,000.00	10	59
1	ADELL	VILLAGE OF ADELL	1	7	1	108,934	32,680.20	9	60
3	ALLENTON	ALLENTON SAN DIST	1	7	1	103,200	30,960.00	10	60
2	ALMOND	VILLAGE OF ALMOND	1	7	1	45,818	13,745.55	10	60
1	APPLETON	CITY OF APPLETON	5	1	2	1,941,230	250,000.00	10	61
3	ATHENS	VILLAGE OF ATHENS	1	1	1	85,628	25,688.27	1	57
2	BALDWIN	VILLAGE OF BALDWIN	1	7	1	310,000	93,000.00	9	60
3	BAYFIELD	CITY OF BAYFIELD	1	5	1	133,787	40,136.03	10	57
1	BEAR CREEK	VILLAGE OF BEAR CREEK	1	1	1	109,000	32,700.00	10	61
3	BELOIT	CITY OF BELOIT	5	7	1	876,755	250,000.00	1	57
3	BENTON	VILLAGE OF BENTON	1	5	1	49,609	14,882.79	10	59
3	BLAIR	CITY OF BLAIR	1	1	1	124,803	37,440.77	9	59
3	BLOOMINGTON	VILLAGE OF BLOOMINGTON	1	7	1	132,949	39,884.81	9	58
3	BRODHEAD	CITY OF BRODHEAD	1	7	1	117,328	35,198.38	1	57
3	BROOKFIELD	CITY OF BROOKFIELD	3	7	1	593,864	178,159.32	9	60
3	CAMBRIA	VILLAGE OF CAMBRIA	1	7	1	70,403	21,120.86	10	57
1	CAMBRIDGE	VILLAGE OF CAMBRIDGE	1	9	1	156,461	46,938.00	10	61

STATUS	LOCATION	NAME OF APPLICANT	POP CODE	DESCRIP TION	TYPE CONST	ESTIMATED ELIGIBLE COST OF PROJECT	FEDERAL GRANT OFFER	PROJECT APPROVED MONTH-YEAR	
3	CASCO	VILLAGE OF CASCO	1	1	1	99,273	25,000.00	1	57
3	CASHTON	VILLAGE OF CASHTON	1	7	4	126,162	37,848.70	6	59
2	CEDARBURG	CITY OF CEDARBURG	1	7	4	310,950	85,950.00	10	59
3	CENTURIA	VILLAGE OF CENTURIA	1	1	1	85,624	25,687.26	9	58
2	CLAYTON	VILLAGE OF CLAYTON	1	9	4	58,500	17,550.00	9	60
3	CLINTON	VILLAGE OF CLINTON	1	1	1	137,680	34,500.00	1	57
1	CLYMAN	VILLAGE OF CLYMAN	1	7	1	128,225	38,467.00	11	61
2	COTTAGE GROVE	VILLAGE OF COTTAGE GROV	1	7	1	60,961	18,288.31	9	59
3	DEVILS LAKE	DEVILS LAKE STATE PK	4	5	4	35,734	10,720.15	10	57
3	DICKEYVILLE	VILL OF DICKEYVILLE	1	7	1	76,434	22,930.35	10	59
3	DODGEVILLE	IOWA CO HOSP HOME	1	1	1	42,279	12,683.62	3	58
3	DOUSMAN	VILLAGE OF DOUSMAN	1	1	1	141,937	35,220.00	9	59
3	DRESSER	VILLAGE OF DRESSER	1	5	1	143,116	42,934.87	1	60
3	DURAND	CITY OF DURAND	1	7	1	155,640	46,692.10	10	57
2	EAU CLAIRE	CITY OF EAU CLAIRE	5	1	2	352,831	84,023.21	2	60
3	EDEN	VILLAGE OF EDEN	1	5	1	47,187	14,155.96	9	58
1	ELEVA	VILLAGE OF ELEVA	1	1	1	37,023	11,106.90	11	61
3	EMBARRASS	VILLAGE OF EMBARRASS	1	7	1	58,463	17,539.02	9	60
3	FAIRCHILD	VILLAGE OF FAIRCHILD	1	7	1	44,130	13,239.03	9	58
3	FLORENCE	TOWN OF FLORENCE	1	9	1	55,335	16,395.00	10	57
3	FOND DU LAC	CITY OF FOND DU LAC	5	1	7	56,724	17,017.23	9	58
1	FOND DU LAC	CITY OF FOND DU LAC	5	7	5	56,780	17,034.00	10	61
3	FORESTVILLE	FORESTVILLE SAN DIST	1	9	1	59,736	14,917.50	9	59
2	FORT ATKINSON	CITY OF FORT ATKINSON	3	1	2	436,329	130,898.82	10	59
1	FREDERIC	VILLAGE OF FREDERIC	1	7	1	118,320	35,496.00	10	61
2	FREDONIA	VILLAGE OF FREDONIA	1	1	7	77,558	23,267.40	6	60
3	GENOA CITY	VILLAGE OF GENOA CITY	1	6	4	123,341	35,586.00	10	57
1	GILMAN	VILLAGE OF GILMAN	1	7	1	83,359	25,007.00	10	61
3	GRAFTON	VILLAGE OF GRAFTON	1	5	5	285,156	85,546.74	9	58
3	GRANTON	VILLAGE OF GRANTON	1	9	2	15,800	4,740.06	9	59

3	GREENWOOD	CITY OF GREENWOOD	1	1	1	143,062	42,918.64	9	59
2	HARTLAND	VILLAGE OF HARTLAND	1	7	1	320,443	96,132.00	9	60
1	HAWKINS	VILLAGE OF HAWKINS	1	1	1	51,635	15,490.50	10	61
1	HOLLAND	TOWN OF HOLLAND 'SAN DIS	1	7	1	147,252	44,175.45	11	61
3	HUDSON	CITY OF HUDSON	2	1	1	317,327	95,198.20	9	58
3	INDEPENDENCE	CITY OF INDEPENDENCE	1	7	1	71,845	20,802.62	1	57
3	IXONIA	IXONIA SEWER DIST NO 1	1	5	1	59,933	17,980.04	9	58
2	JUDA	JUDA SANITARY DIST	1	6	1	45,584	13,675.38	9	59
3	KIMBERLY	VILLAGE OF KIMBERLY	2	1	2	112,171	32,170.80	10	59
3	LAFARGE	VILLAGE OF LAFARGE	1	5	1	96,292	28,887.68	1	57
3	LAKE DELTON	VILLAGE OF LAKE DELTON	1	5	1	137,640	41,292.07	10	57
2	LITTLE CHUTE	VILLAGE OF LITTLE CHUTE	2	1	3	226,460	67,938.00	10	59
2	LIVINGSTON	VILLAGE OF LIVINGSTON	1	7	1	88,603	25,428.48	9	60
3	LODI	CITY OF LODI	1	1	4	139,904	41,971.05	9	58
3	LOMIRA	VILLAGE OF LOMIRA	1	2	1	75,074	21,652.46	10	57
1	MADISON	MADISON METROPOLITAN SD	7	1	2	2,716,000	367,304.50	11	61
		TOWN BLOOMING GROVE							
		TOWN OF BURKE							
		TOWN OF FITCHBURG							
		TOWN OF MADISON							
		TOWN OF MIDDLETON							
		TOWN OF VERONA							
		TOWN OF WESTPORT							
		VILL OF MAPLE BLUFF							
		VILLAGE OF MCFARLAND							
		VILLAGE OF MIDDLETON							
		VILLAGE OF MONONA							
		VILL SHOREWOOD HILLS							
1	MANITOWOC	CITY OF MANITOWOC	5	3	2	928,130	250,000.00	11	61
3	MANITOWOC	CITY OF MANITOWOC	5	1	1	759,728	170,000.00	8	58
3	MAZOMANIE	VILLAGE OF MAZOMANIE	1	5	1	116,619	34,985.55	1	57
1	MENASHA	MENASHA S D # 4	2	5	1	202,500	60,750.00	9	60
3	MENOMONIE	CITY OF MENOMONIE	3	1	3	243,395	73,018.40	1	57
3	MERRILLAN	VILLAGE OF MERRILLAN	1	7	1	54,914	14,097.60	10	57
3	MILWAUKEE	CITY OF MILWAUKEE	9	1	7	365,821	98,969.51	1	59
3	MILWAUKEE	CITY OF MILWAUKEE	9	1	2	263,259	78,977.74	10	57

STATUS	LOCATION	NAME OF APPLICANT	POP CODE	DESCRIP TION	TYPE CONST	ESTIMATED ELIGIBLE COST OF PROJECT	FEDERAL GRANT OFFER	PROJECT APPROVED MONTH-YEAR
3	MINERAL POINT	CITY OF MINERAL POINT	1	5	1	260,789	78,236.76	6 58
3	MONTFORT	VILLAGE OF MONTFORT	1	5	1	36,906	11,071.68	10 59
3	MONTICELLO	VILLAGE OF MONTICELLO	1	1	4	60,012	15,499.50	9 58
2	MORRISONVILLE	MORRISONVILLE SAN DIST1	1	6	1	41,806	12,541.75	9 59
3	NEW GLARUS	VILLAGE OF NEW GLARUS	1	1	1	167,426	50,227.91	10 57
3	OAK CREEK	CITY OF MILWAUKEE	8	6	1	1,480,616	174,387.15	10 60
3	OSCEOLA	VILLAGE OF OSCEOLA	1	5	1	107,077	32,123.05	10 57
2	OSSEO	CITY OF OSSEO	1	7	1	174,761	52,428.11	9 60
3	PATCH GROVE	VILLAGE OF PATCH GROVE	1	5	1	62,949	18,884.78	10 59
3	PHILLIPS	CITY OF PHILLIPS	1	1	1	106,369	31,910.74	10 57
3	PITTSVILLE	CITY OF PITTSVILLE	1	5	1	116,124	26,057.40	9 59
3	PORTAGE	CITY OF PORTAGE	3	1	3	148,084	44,425.17	1 57
3	POTOSI	VILLAGE OF POTOSI	1	5	1	104,745	30,988.24	9 58
3	POUND	VILLAGE OF POUND	1	7	1	83,089	24,926.70	9 60
3	PRESCOTT	CITY OF PRESCOTT	1	6	1	59,840	16,321.72	9 58
1	RACINE CO	NORTH PARK SAN DIST	2	3	2	90,000	27,000.00	11 61
1	RACINE	SO LAWN SAN DIST	1	3	2	127,598	38,279.00	5 60
2	REDGRANITE	VILLAGE OF REDGRANITE	1	7	1	106,790	32,037.00	9 60
3	RHINELANDER	CITY OF RHINELANDER	3	1	7	50,865	15,259.59	10 59
3	RICHLAND CO	RICHLAND COUNTY	1	5	1	69,407	20,821.95	9 58
1	RIVER FALLS	CITY OF RIVER FALLS	2	1	1	381,687	114,506.00	10 61
1	ROBERTS	VILLAGE OF ROBERTS	1	9	1	56,500	16,950.00	10 61
1	ROSENDALE	VILLAGE OF ROSENDALE	1	7	1	134,864	40,459.20	9 60
2	ROXBURY	ROXBURY SAN DIST NO 1	1	7	1	36,198	10,859.33	10 59
3	SAUKVILLE	VILLAGE OF SAUKVILLE	1	7	1	165,096	49,528.94	9 58
1	SHIOCTON	VILLAGE OF SHIOCTON	1	1	1	72,501	21,750.30	11 61
3	SHARON	VILLAGE OF SHARON	1	7	1	133,578	36,255.00	9 59
3	SHAWANO	CITY OF SHAWANO	3	1	7	297,210	89,163.12	9 58
3	SHEBOYGAN	CITY OF SHEBOYGAN	5	1	7	650,211	137,872.05	11 57
1	SHELL LAKE	VILLAGE OF SHELL LAKE	1	1	5	98,055	29,416.50	9 60
2	SHULLSBURG	CITY OF SHULLSBURG	1	7	1	190,830	57,249.82	10 59

3	SIREN	VILLAGE OF SIREN	1	9	1	51,007	15,301.96	10	60
2	ST NAZIANZ	VILLAGE OF ST NAZIANZ	1	7	1	109,826	21,000.00	9	60
1	STRUM	VILLAGE OF STRUM	1	1	2	37,169	11,150.70	9	60
3	STURTEVANT	VILLAGE OF STURTEVANT	1	5	1	196,282	58,884.61	10	57
3	SULLIVAN	VILLAGE OF SULLIVAN	1	5	1	86,167	25,849.97	9	58
3	SUPERIOR	CITY OF SUPERIOR	5	7	1	1,347,028	250,000.00	12	56
1	SURING	VILLAGE OF SURING	1	1	1	103,146	30,943.80	10	61
3	SUSSEX	VILLAGE OF SUSSEX	1	7	1	177,533	53,259.95	9	58
3	TIGERTON	VILLAGE OF TIGERTON	1	7	1	74,490	22,347.01	10	59
3	TWIN LAKES	VILLAGE OF TWIN LAKES	1	6	1	177,947	53,384.00	1	57
3	TWO RIVERS	CITY OF TWO RIVERS	4	1	2	11,590	3,476.85	10	59
3	UNION GROVE	VILLAGE OF UNION GROVE	1	1	5	155,563	46,669.13	6	59
1	VERONA	VILLAGE OF VERONA	1	5	1	324,300	97,290.00	10	61
3	VIOLA	VILLAGE OF VIOLA	1	7	1	73,075	21,922.47	10	57
3	WASHBURN	CITY OF WASHBURN	1	5	1	123,206	36,961.76	10	57
3	WEST SALEM	VILLAGE OF WEST SALEM	1	7	1	78,344	23,503.20	10	57
3	WESTFIELD	VILLAGE OF WESTFIELD	1	6	1	39,260	11,777.91	5	58
3	WHITEHALL	CITY OF WHITEHALL	1	7	1	232,979	69,529.39	10	57
3	WHITEWATER	CITY OF WHITEWATER	2	1	2	128,304	37,500.00	1	57
3	WILLIAMS BAY	VILLAGE OF WILLIAMS BAY	1	1	2	88,305	26,491.40	1	57
1	WINDSOR	WINDSOR SAN DIST 1	1	7	1	67,134	20,140.17	9	60
3	WITHEE	VILLAGE OF WITHEE	1	3	1	29,634	8,890.14	8	60
3	WRIGHTSTOWN	VILLAGE OF WRIGHTSTOWN	1	1	4	60,665	16,632.90	9	58
2	WRIGHTSTOWN	WRIGHTSTOWN SAN DIST 1	1	7	1	51,071	15,321.30	9	60
	WYOMING								
3	BAGGS	TOWN OF BAGGS	1	9	1	20,961	6,288.36	8	59
3	BIG PINEY	TOWN OF BIG PINEY	1	9	1	41,430	12,428.89	10	58
3	BYRON	TOWN OF BYRON	1	9	1	28,570	8,571.00	12	59
3	CASPER	CITY OF CASPER	4	5	1	1,338,475	250,000.00	3	57
2	CHEYENNE	S CHEYENNE W AND S DIST	2	5	1	474,094	142,198.00	9	60
3	CHEYENNE	CITY OF CHEYENNE	5	3	1	588,259	176,478.00	11	60
3	CHEYENNE	CITY OF CHEYENNE	5	1	3	445,966	133,789.92	7	58

STATUS	LOCATION	NAME OF APPLICANT	POP CODE	DESCRIP TION	TYPE CONST	ESTIMATED ELIGIBLE COST OF PROJECT	FEDERAL GRANT OFFER	PROJECT APPROVED MONTH-YEAR
3	CODY	CITY OF CODY	2	9	1	63,325	18,997.39	3 58
3	DOUGLAS	TOWN OF DOUGLAS	2	9	1	102,275	30,322.00	2 57
3	DUBOIS	TOWN OF DUBOIS	1	9	1	92,523	27,757.16	8 57
3	E THERMOPOLIS	TOWN EAST THERMOPOLIS	1	3	1	6,152	1,845.58	9 59
3	ENCAMPMENT	TOWN OF ENCAMPMENT	1	9	1	20,479	6,143.79	1 58
3	EVANSVILLE	TOWN OF EVANSVILLE	1	9	1	84,377	25,313.12	6 60
3	FORT LARAMIE	TOWN OF FORT LARAMIE	1	7	1	24,554	7,366.32	10 60
3	FRANNIE	TOWN OF FRANNIE	1	9	1	12,070	3,621.01	12 57
3	GLENROCK	TOWN OF GLENROCK	1	9	1	33,782	10,134.45	10 57
3	GREYBULL	TOWN OF GREYBULL	1	9	1	72,828	21,848.47	2 60
3	GUERNSEY	TOWN OF GUERNSEY	1	9	1	8,667	2,600.16	4 58
2	HUDSON	TOWN OF HUDSON	1	9	1	54,996	16,498.76	1 59
3	KAYCEE	TOWN OF KAYCEE	1	7	1	47,599	14,279.72	10 60
3	LANDER	TOWN OF LANDER	2	9	1	78,143	23,442.78	4 58
3	LARAMIE	CITY OF LARAMIE	3	9	1	245,541	73,662.23	12 56
3	LINGLE	TOWN OF LINGLE	1	9	2	27,241	8,172.30	11 58
3	LOVELL	TOWN OF LOVELL	2	9	1	65,540	19,662.08	9 57
3	LUSK	TOWN OF LUSK	1	1	1	41,612	12,483.76	3 59
1	LYMAN	TOWN OF LYMAN	1	9	5	11,276	3,382.80	3 61
3	MILLS	TOWN OF MILLS	1	9	1	77,533	23,259.98	9 57
3	MOORCROFT	TOWN OF MOORCROFT	1	9	1	16,873	5,061.87	3 59
3	PINEDALE	TOWN OF PINEDALE	1	9	1	59,452	17,835.67	3 57
3	POWELL	TOWN OF POWELL	1	9	1	100,401	30,120.44	12 57
3	RIVERTON	CITY OF RIVERTON	2	5	1	416,395	124,918.44	10 58
2	ROCK SPRINGS	CITY OF ROCK SPRINGS	4	3	1	29,688	8,906.45	1 59
3	SARATOGA	TOWN OF SARATOGA	1	9	1	30,146	9,044.00	3 57
3	TENSLEEP	TOWN OF TENSLEEP	1	9	1	13,521	4,056.25	8 59
3	THERMOPOLIS	TOWN OF THERMOPOLIS	2	5	1	315,763	94,728.81	9 57
3	TORRINGTON	TOWN OF TORRINGTON	2	9	1	77,449	23,234.70	3 57
3	TORRINGTON	TOWN OF TORRINGTON	2	9	1	21,807	6,542.22	3 59
3	UPTON	TOWN OF UPTON	1	9	1	21,391	6,417.30	2 60
3	WAMSUTTER	TOWN OF WAMSUTTER	1	9	1	21,910	6,572.91	1 58

3	WORLAND	CITY OF WORLAND	2	9	1	168,747	50,624.12	9	57
	PUERTO RICO								
1	BARRANQUITAS	PR AQUEDUCT SEWER AUTH	2	6	1	147,000	44,100.00	3	60
2	BAYAMON	PR AQUEDUCT SEWER AUTH	4	3	1	1,404,000	250,000.00	6	57
1	CAGUAS	PR AQUEDUCT SEWER AUTH	5	7	1	715,000	214,500.00	5	59
1	CAMUY HATILLO	PR AQUEDUCT SEWER AUTH	2	5	1	178,000	53,400.00	3	59
2	CATANO	PR AQUEDUCT SEWER AUTH	3	3	1	1,043,222	250,000.00	6	57
2	CAYEY	PR AQUEDUCT SEWER AUTH	4	7	4	264,750	79,425.00	3	59
2	COMERIO	PR AQUEDUCT SEWER AUTH	3	5	1	155,000	46,500.00	3	59
1	CONDADO	PR AQUEDUCT SEWER AUTH	2	3	2	875,000	250,000.00	12	61
2	E RIO PIEDRAS	PR AQUEDUCT SEWER AUTH	8	3	1	160,180	48,054.00	1	59
1	FAJARDO	PR AQUEDUCT SEWER AUTH	4	6	1	357,000	107,100.00	3	60
2	GUANICA	PR AQUEDUCT SEWER AUTH	2	7	1	268,230	80,469.00	10	58
2	GUAYANILLA	PR AQUEDUCT SEWER AUTH	4	7	1	179,717	53,915.00	4	59
3	GURABO	PR AQUEDUCT SEWER AUTHH	2	5	1	117,785	35,335.67	6	57
3	HORMIGUEROS	PR AQUEDUCT SEWER AUTH	1	6	1	108,342	32,502.00	6	57
1	JUNCOS	PR AQUEDUCT SEWER AUTH	3	1	6	95,000	28,500.00	3	59
3	LAJAS	PR AQUEDUCT SEWER AUTH	1	5	1	114,896	32,340.00	6	57
1	LAS MARIAS	PR AQUEDUCT SEWER AUTH	1	7	1	120,000	36,000.00	5	59
1	MAUNABO	PR AQUEDUCT SEWER AUTH	1	7	1	110,000	33,000.00	5	59
1	MIRAMAR	P R AQUEDUCT SEWER AUTH	6	3	1	2,184,500	250,000.00	6	60
3	PUERTO NUEVO	PR AQUEDUCT SEWER AUTH	7	3	1	127,436	38,230.85	2	58
1	PUNTA MARIAS	P R AQUEDUCT SEWER AUTH	1	3	1	35,700	10,710.00	6	60
1	RAMAL OESTE	P R AQUEDUCT SEWER AUTH	4	3	1	612,000	183,600.00	6	60
3	RINCON	PR AQUEDUCT SEWER AUTH	1	5	1	69,003	20,701.18	6	57
1	SALINAS	PR AQUEDUCT SEWER AUTH	2	5	1	100,000	30,000.00	11	60
1	SAN JUAN	PR AQUEDUCT SEWER AUTH	4	3	1	41,600	12,480.00	5	59
1	SAN JUAN	PR AQUEDUCT SEWER AUTH	4	3	1	357,000	107,100.00	5	59
2	SAN JUAN	PR AQUEDUCT SEWER AUTH	7	3	1	1,865,099	250,000.00	12	57
3	SAN JUAN	PR AQUEDUCT SEWER AUTH	8	3	1	1,121,878	250,000.00	6	57
1	SAN LORENZO	P R AQUEDUCT SEWER AUTH	3	6	4	178,000	53,400.00	5	60
3	TRUJILLO ALTO	PR AQUEDUCT SEWER AUTH	1	5	1	65,289	19,586.62	6	57
2	UTUADO	PR AQUEDUCT SEWER AUTH	3	7	1	285,000	60,900.00	5	59
1	VIEQUES	PR AQUEDUCT SEWER AUTH	2	7	1	170,000	51,000.00	5	59
1	VILLALBA	PR AQUEDUCT SEWER AUTH	1	7	1	120,000	36,000.00	5	59

Table 1 - Cumulative Summary Showing the Number and Estimated Eligible Costs of Projects Approved and the Amount of Federal Grant Offers, by State and Status of Construction

As of December 31, 1961

Projects:	Total Approved			Under Construction			Completed		
State	No.	Eligible Costs	Federal Grant Offers	No.	Eligible Costs	Federal Grant Offers	No.	Eligible Costs	Federal Grant Offers
Totals	3212	$1,213,347,604	$265,847,251	739	$423,336,391	$77,691,080	1823	$550,191,128	$133,674,801
Alabama	63	28,791,222	6,918,211	16	7,600,128	2,011,988	25	15,314,942	3,202,951
Alaska	4	1,676,103	385,840	4	1,676,103	385,840	--	---	---
Arizona	40	13,313,261	3,503,563	4	2,589,431	531,720	28	7,944,889	2,206,883
Arkansas	102	21,568,645	5,351,501	26	3,669,249	1,099,970	49	12,210,660	2,669,641
California	94	91,285,430	10,889,652	20	56,939,298	2,374,332	71	33,563,218	8,327,140
Colorado	56	13,700,563	3,965,561	10	2,380,866	700,568	40	10,264,163	2,948,333
Connecticut	17	14,375,007	3,354,662	8	6,451,657	1,604,978	8	7,323,350	1,569,684
Delaware	15	5,919,247	1,744,774	5	2,371,395	681,818	6	1,424,962	427,489
Dist.of Columbia	10	18,191,519	2,410,846	2	4,711,948	448,227	7	11,462,171	1,362,619
Florida	44	17,394,768	4,778,022	12	5,462,436	1,520,730	32	11,932,332	3,257,292
Georgia	49	29,955,414	6,393,623	14	10,780,400	2,033,206	20	10,262,363	2,664,812
Hawaii	15	10,140,862	2,323,483	7	5,821,199	1,322,480	3	310,081	93,023
Idaho	34	11,158,508	2,834,892	9	2,731,042	619,312	22	7,206,864	1,849,400
Illinois	135	39,485,100	11,146,131	35	8,432,292	2,352,559	70	21,514,362	6,049,785
Indiana	54	28,261,441	6,686,877	11	8,194,772	1,391,949	30	13,604,528	3,779,901
Iowa	72	27,043,320	4,646,234	15	14,753,346	1,437,120	51	9,207,957	2,511,874
Kansas	97	16,441,886	4,426,387	9	2,190,100	668,198	65	11,082,480	2,873,865
Kentucky	57	23,277,622	5,524,816	16	9,774,401	2,103,981	25	9,474,291	2,222,313
Louisiana	59	23,718,726	6,151,413	29	12,038,333	3,233,874	22	5,755,597	1,714,420
Maine	12	5,267,654	1,505,091	3	1,134,300	292,000	6	2,345,354	697,491
Maryland	41	18,100,329	3,950,904	12	5,617,935	1,059,702	19	6,610,381	1,609,702
Massachusetts	66	29,782,446	6,461,352	26	12,910,699	3,239,686	24	6,642,729	1,504,496
Michigan	65	40,052,319	7,954,509	14	13,497,641	2,709,962	49	17,651,178	4,523,297

Projects: State	Total Approved No.	Total Approved Eligible Costs	Total Approved Federal Grant Offers	Under Construction No.	Under Construction Eligible Costs	Under Construction Federal Grant Offers	Completed No.	Completed Eligible Costs	Completed Federal Grant Offers
Minnesota	58	$ 18,118,311	$ 5,089,353	17	$ 5,123,870	$ 1,389,914	32	$ 9,974,513	$ 2,793,461
Mississippi	82	18,542,553	5,054,349	22	4,349,166	1,223,302	39	7,198,397	1,800,209
Missouri	121	23,321,668	6,183,951	23	5,619,014	1,532,317	73	11,212,864	3,190,437
Montana	51	9,771,541	2,573,396	7	1,439,577	431,873	39	6,222,690	1,630,804
Nebraska	99	26,657,317	4,210,030	15	14,940,675	1,154,836	64	8,734,165	2,164,861
Nevada	19	4,909,815	1,468,900	4	828,104	248,420	11	3,019,661	901,870
New Hampshire	21	8,556,540	2,460,456	4	2,540,150	720,800	10	2,373,599	697,738
New Jersey	48	29,551,007	6,559,144	18	8,028,547	2,299,883	22	17,409,493	3,274,743
New Mexico	50	15,757,915	3,759,007	11	6,632,917	1,270,855	30	6,187,931	1,667,381
New York	138	114,824,447	16,883,641	43	46,680,494	5,162,246	46	35,724,330	5,436,617
North Carolina	71	31,312,804	7,371,694	16	8,449,119	1,905,631	38	16,325,515	3,784,653
North Dakota	112	11,209,614	2,869,298	12	5,822,080	1,254,901	78	3,789,913	1,136,980
Ohio	89	43,810,807	9,560,942	25	15,986,609	3,141,889	53	23,855,896	5,423,953
Oklahoma	111	16,895,672	4,729,439	26	4,597,185	1,342,223	73	11,207,274	3,059,853
Oregon	57	16,967,087	4,263,301	14	6,115,842	1,368,241	34	7,361,603	2,157,418
Pennsylvania	79	58,525,441	12,767,311	26	23,986,097	4,711,741	42	26,794,506	6,088,754
Rhode Island	18	8,186,465	2,004,452	6	1,829,245	548,374	7	1,891,095	567,329
South Carolina	52	15,245,687	4,060,155	11	2,989,437	812,331	25	6,321,239	1,859,821
South Dakota	81	6,122,441	1,728,791	8	1,406,150	356,499	50	2,640,531	785,964
Tennessee	61	26,518,201	6,892,877	21	12,801,733	2,857,671	26	8,307,643	2,422,780
Texas	146	49,976,860	11,403,445	23	8,682,367	2,220,525	81	29,991,939	8,422,565
Utah	23	15,706,629	3,366,157	7	5,133,768	1,203,730	15	10,481,241	2,134,941
Vermont	18	9,469,150	2,663,045	6	2,493,085	747,925	6	3,416,365	893,910
Virginia	92	24,575,468	5,135,970	16	4,878,955	1,052,739	65	16,895,536	3,445,051
Washington	72	17,313,355	4,080,945	10	3,666,482	980,165	52	12,395,453	2,725,370
West Virginia	43	17,642,024	4,600,937	10	7,357,457	1,769,649	15	6,295,986	1,679,308
Wisconsin	126	25,809,955	6,280,461	19	3,045,319	871,334	82	14,496,512	3,735,298
Wyoming	40	5,401,811	1,468,611	3	558,778	167,603	36	4,831,757	1,297,625
Puerto Rico	33	13,745,627	3,048,849	9	5,625,198	1,119,263	7	1,724,629	428,696
Virgin Islands	--	---	---	--	---	---	--	---	---

Table 2 - CONSTRUCTION GRANT PROJECTS BY POPULATION GROUPS

As of December 31, 1961

Population	Number of Projects	Cumulative Percent Number	Estimated Eligible Project Cost	Cumulative Percent Est. Cost	Federal Grant Offers Made	Cumulative Percent Grant Offers
Less than 2,500	1551	48%	$ 189,979,790	16%	$ 55,058,946.89	21%
2,500 to 5,000	516	64	155,487,849	28	44,466,253.02	37
5,001 to 10,000	453	78	193,418,030	44	52,704,793.01	57
10,001 to 25,000	332	89	209,047,725	62	49,714,871.19	76
25,001 to 50,000	157	94	139,444,142	73	27,615,294.29	86
50,001 to 125,000	86	96	102,018,885	82	14,800,397.13	92
125,001 to 250,000	54	98	53,718,922	86	8,265,797.50	95
250,001 to 500,000	32	99	44,844,558	90	6,249,141.81	97
500,001 and Over	31	100	125,387,703	100	6,971,756.40	100
Totals	3212		$ 1,213,347,604		$ 265,847,251.24	

Mr. Fogarty. Mr. Laird?

WASTE REMOVAL METHODS

Mr. Laird. It seems to me that in this area of water pollution and sanitation and the handling of our sewage problems, we have not made as great progress as we should be making. I don't know whether this Federal grant program has been geared in the right direction.

The disposal of organic waste, communal and industrial, is certainly a matter of increasing public concern. I have been interested in this, and I have gone over the Zimmerman process, which is old from the standpoint of experiments that were carried on abroad and are now being applied here in the United States.

The metropolitan sanitation district in Chicago, and, in my congressional district, the city of Wausau, Wis., and also I think Wheeling, W. Va., have gone forward with this new process.

What do you think of the results?

Mr. McCallum. I am familiar with the one in Chicago—I mean with the process.

They had some problems with it when I was there a few months ago. What it does, of course, is to oxidize the sludge with the heat exchange method. In places like Chicago, where the disposal of the solids is a problem, this is certainly a new and unique means of attacking that problem.

WAUSAU, WIS., SYSTEM

Mr. Laird. Have you seen the operation of the plant in Wausau, Wis.?

Mr. McCallum. No, I haven't been there.

Mr. Laird. This Zimmerman process creates its own energy. Once you install it, it perpetuates itself. Isn't that correct?

Mr. McCallum. Yes, sir. It is a complete oxidation of the sludge which reduces it very greatly in volume and makes the disposal of the residue relatively simple.

Mr. Laird. The residue is pure when it is removed. Isn't that correct?

Mr. McCallum. Yes, it is certainly odorless and looks innocuous, and I think—I don't know what Dr. Anderson would say, but I imagine it is sterile.

Mr. Laird. What does Dr. Anderson say about that?

Dr. Anderson. I can't answer that question as to whether it is sterile, Mr. Laird.

Mr. Laird. I have seen people drink it. They must have confidence in it.

Dr. Anderson. They certainly must.

Mr. Laird. Why isn't the Public Health Service interested in this? I am surprised that no one has been to Wausau, Wis., to look over this process.

Mr. McCallum. I would be delighted to come up there if I had an invitation. We are interested in any new methods of treatment. These are some of the things that we hope will be brought along faster through our demonstration grants.

There are thoughts on these matters in some of the foreign countries and in the literature, and they have been worked upon in the laboratory. But the States are frequently and understandably reluctant to approve some new method in this field because there have been times when they have had unfortunate experiences.

Mr. Laird. They went ahead through the help of private industry without a single dollar from the Federal Government. They didn't ask for a penny for this project in Wausau, Wis. A research grant was made by the Sterling Drug Co. in order to see if this would work. This research grant was made to set up the plant. When it was constructed it was turned over to the city of Wausau and now is in operation.

From the cost studies that I have seen, I am rather amazed that the Public Health Service hasn't paid any attention to this. From the cost standpoint this is quite a remarkable thing, isn't it?

Mr. McCallum. The Zimmerman process will fit certain situations. Of course, we always leave it up to the State, the consulting engineer, and the municipality pretty much as to what they think is the best thing to do.

INTEREST IN NEW WASTE DISPOSAL METHODS

We are interested in any more efficient and more economical method of waste treatment.

There are other new methods. The Germans are doing some work on high-frequency sonic means of removing solids from water. We have been interested in that. It is our hope that, with more emphasis on new approaches different from our old methods of treatment which we have used since World War I, we will be ready by 1980 to meet this problem of purifying water.

It is encouraging, especially encouraging, to know that certain industries are becoming interested. Since we have started on this advanced waste treatment, the Esso Corp. has become interested in this because of a small research contract we had with them.

Mr. Laird. I attended the dedication of this new plant in Wausau some months ago. It seemed to me that this process also had rather far-reaching application—burning without flame—from the standpoint of its effect on air pollution.

It should have the interest of the Public Health Service from that standpoint, too. Here you have a disposal process in which you are burning up these solids, but you have no flame so no air pollution is involved. You take this sludge and reduce it to a very small amount. This plant has been under continuous operation now for the past year.

I was surprised that the Public Health Service didn't have more information.

Mr. McCallum. We have been watching that. We are interested in better methods and more economical methods of handling sludge or doing anything else in this field because there is never money enough to get the job done and we want to see every penny go as far as it can.

But our research effort, as we see the job that we ought to be doing, is to focus more effort on removing more solids from the liquid wastes in all cases. It is the solids that are still left in the effluent that we are having to begin to worry more about now.

That is our problem with the Illinois Waterway. Maybe at Wausau you don't have a serious problem of downstream users.

Mr. LAIRD. We have that problem. Of course the water in the Wisconsin River is used many, many times. The Wisconsin River is the hardest working river in the United States. I don't know whether you are familiar with it, but this water is used many times up and down the river in the production of power and by the paper industry which we have there.

We are the largest producers of paper of any State in the Nation. So that river is a pretty important part of our economy. I hope the Public Health Service will take some interest in this experiment which has been so successfully carried on there and not overlook it just because they didn't happen to finance it, because it happened to be financed locally and through this research grant from the Sterling Drug people.

Dr. ANDERSON. Let me assure you when I learned about this I was very much intrigued by the possibilities of this process to dispose of sludge which in most places in the country is an unmanageable problem.

The staff, I am sure, will watch these early installations to become as familiar as they can with this process.

Mr. LAIRD. This one has been in continuous operation now for the last year. It is quite a remarkable record I think which they have achieved there in Wausau.

Mr. MCCALLUM. This is a very intriguing thing. It is one that 15 or 20 years ago no one would have thought of. But the volume of material that is removed from waste water is tremendous.

In many cases it is a trainload a day in wet solids, and it is a very expensive operation.

Dr. ANDERSON. Mr. Laird, I have learned that we do have some construction grant projects for sewage treatment plants in which this process is involved other than the three that you mentioned. So apparently it is becoming a matter for real consideration around the country.

Mr. LAIRD. That is all, Mr. Chairman.

Mr. FOGARTY. Is there anything else you would like to say, Mr. McCallum?

Mr. MCCALLUM. I have nothing, sir.

RELEASE OF THE GROSS REPORT

Mr. FOGARTY. I don't know who is going to answer this question, but before you leave: Why wasn't the Gross report released publicly when it was received?

Mr. KELLY. The Gross Committee report was prepared at the request of the President's science adviser and the Director of the Bureau of the Budget. When it was complete, we submitted it to them. Then, as soon as we had it in form for reproduction—you know, it had been edited and prepared for the printer—we requested authority to release it as we have done with all advisers' reports.

We subsequently got that authority. I think the only question that arose is as to whether or not it should be released prior to the release of the President's budget, since both occurred almost at the some time.

We received authority to release it immediately after the President's budget was released and then it was sent to the printer. It took some period of time for printing and distribution, and so forth.

Mr. FOGARTY. So it has been——

Mr. KELLY. It has been authorized for public distribution. However, I don't know whether it has been printed yet or not or available for distribution.

FINANCIAL REQUIREMENTS OF THE GROSS REPORT

Mr. FOGARTY. Is it being translated into dollars required to carry it out?

Mr. KELLY. To my knowledge there has been no action as yet taken calling for anything but a release of the report to those who are interested in reading it.

Mr. FOGARTY. I assume that everyone concerned in your Department has read the report.

Mr. KELLY. Yes, sir.

Mr. FOGARTY. I would assume that they have a general idea what it would cost to carry out these recommendations.

Mr. KELLY. There are some very specific figures in it, although I have not seen them summarized into a table. You have to differentiate between the recommendations of the subcommittees that studied particular problems prior to submitting them to the full committee, and the full committee's recommendations.

The full committee's recommendations would not be the sum total of the subcommittee's recommendations. The full committee did not price theirs out in the same degree of detail that the subcommittees did.

Mr. FOGARTY. The report as we read it is the final report?

Mr. KELLY. It does include, as attachments to the full committee report, the subcommittee reports.

Mr. FOGARTY. Will supplemental appropriations be requested if the budget isn't adequate to carry it out?

Mr. KELLY. I know of no plans to supplement this except with respect to radiological health.

Mr. FOGARTY. Will you get us up two tables, then, one showing the subcommittees' recommendations and how much it would cost to carry out their recommendations and also the same kind of table for the final report's recommendations?

Mr. KELLY. I will do so; yes, sir.

(The requested information follows:)

COST OF IMPLEMENTING RECOMMENDATIONS TO THE SURGEON GENERAL OF THE COMMITTEE ON ENVIRONMENTAL HEALTH PROBLEMS AND OF THE SUBCOMMITTEES

The Gross committee has recommended that the Public Health Service undertake a major national effort in environmental health and has recommended a program level of the magnitude of $350 million by 1970. There follows an analysis of the recommended program to be undertaken by that year.

Environmental health

[In thousands]

Environmental health, total	$350,000
Grants total	250,000
Direct operations, total	100,000
Research and training	50,000
Technical assistance and control operations	50,000

The recommendations for 1970 include programs for which authorizing legislation is required, particularly in the areas of special project and training grants.

No specific recommendations were made with respect to timing of the budget increases necessary to reach the recommended 1970 program levels. If equal increases were provided from the current 1962 level to the 1970 goal, it would indicate an approximate annual increase of $38 million. However, several of the recommendations in the report stressed the necessity for providing immediately substantial increased resources, particularly for training facilities, and central scientific staff.

In the light of these factors, the 1963 cost of conducting the programs recommended by the various subcommittees ($116,597,000) appears to be a reasonable level of operations to implement the Gross committee report. The 1963 President's budget includes $61,075,000 for the environmental health programs, exclusive of waste treatment grants.

The various subcommittees gave more detailed consideration to the environmental health program areas. Each subcommitee made recommendations in its area—some more detailed than others. The subcommittees recommended programs estimated to reach a level of $373,925,000 in 1970, beginning at $116,597,000 in 1963. There follow a tabular summary of these recommendations by program.

Air pollution

[In thousands]

	1963	1970
Air pollution, total	$17,500	$36,000
Grants, total [1]	8,850	25,000
Research	5,000	8,000
Training, traineeships, and fellowships	850	4,000
Survey, demonstration and program	3,000	13,000
Direct operations, total [1]	8,650	11,000
Research	7,000	8,000
Training	650	1,000
Technical assistance and control operations	1,000	2,000

[1] The subcommittee recommended the total intramural and extramural effort for each of these 3 activities. The distribution of each activity between intramural and extramural effort was made by the Division of Air Pollution.

Environmental engineering and food protection [1]

[In thousands]

	1963	1970
Environmental engineering and food protection, total [2] [3]	$12,601	$64,550
Grants, total	5,487	48,000
Research	5,487	33,000
Training, traineeships, and fellowships	0	15,000
Direct operations, total	7,114	16,550
Research	3,135	7,500
Training	200	750
Technical assistance and control operations	3,779	8,300

[1] This table reflects a combination of the recommendations by the Environmental Engineering and the Milk and Food Subcommittees.

[2] These estimates were developed by the Division of Environmental Engineering and Food Protection within general statements of program and fund requirements recommended by the subcommittees.

[3] No recommendations are included for the Arctic Health Research Center since the subcommittees did not consider it separately.

Occupational health

[In thousands]

	1963	1970
Occupational health, total [1]	$9,950	$67,200
Grants, total	5,900	55,200
Research	5,000	25,000
Training, traineeships, and fellowships	900	30,200
Direct operations, total	4,050	12,000
Research	2,519	5,400
Training	402	1,800
Technical assistance and control operations	1,129	4,800

[1] All amounts shown were specifically recommended by the subcommittee.

Radiological health

[In thousands]

	1963	1970
Radiological health, total [1] [2]	$31,700	$95,000
Grants, total	11,200	45,000
Research	4,700	30,000
Training, traineeships, and fellowships	3,500	7,000
Survey, demonstration, and program	3,000	8,000
Direct operations, total	20,500	50,000
Research	10,500	27,100
Training	2,000	5,800
Technical assistance and control operations	8,000	17,100

[1] These estimates represent the Division of Radiological Health requirements to conduct the programs recommended by the subcommittee.

[2] Excludes $10,000,000 which was recommended by the subcommittee to meet immediate needs for facilities at headquarters and in the field.

Water supply and pollution control

[In thousands]

	1963	1970
Water supply and pollution control, total [1]	$40, 946	$75, 000
Grants, total [2] [3]	15, 650	36, 000
Research	6, 400	20, 000
Training, traineeships, and fellowships	1, 600	5, 000
Survey, demonstration, and program	7, 650	11, 000
Direct operations, total [2]	25, 296	39, 000
Research	8, 050	11, 600
Training	400	1, 000
Technical assistance and control operations	16, 846	26, 400

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[1] Excludes funds for regional water pollution control laboratories.

[2] The recommendations of the subcommittee included a specific total requirement for grants and for direct operations. The requirements for each activity within these totals were developed by the Division of Water Supply and Pollution Control.

[3] Excludes grants for waste treatment works construction projected at $100 million in 1970 but for which authorizing legislation expires on June 30, 1967.

Environmental health sciences [1]

[In thousands]

	1963	1970
Environmental health sciences, total [2]	$3, 900	$36, 175
Grants, total	2, 000	25, 000
Research	2, 000	20, 000
Institutional training grants	0	5, 000
Direct operations, total	1, 900	11, 175
Research	1, 400	6, 900
Training and manpower resources	400	2, 000
Technical assistance and control operations	100	2, 275

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[1] This table reflects a combination of the recommendations by the Manpower Resources and Training; Applied Mathematics and Statistics; Pharmacology, Toxicology, Physiology, and Biochemistry; and Analytical Methods and Instrumentation Subcommittees.

[2] The amounts shown for each program except institutional training grants were developed by staff of the Office of the Chief, Bureau of State Services (Environmental Health), and represent estimates of the cost of undertaking the various programs recommended by the four subcommittees. The amount for institutional training grants was specifically recommended by the Manpower Resources and Training Subcommittee and not included in any of the categorical program estimates.

Environmental health—Total of subcommittee recommendations [1]

[In thousands]

	1963	1970
Environmental health, total	$116, 597	$373, 925
Grants, total	49, 087	234, 200
Research	28, 587	136, 000
Training, traineeships, and fellowships	6, 850	66, 200
Survey, demonstration, and program	13, 650	32, 000
Direct operations, total	67, 510	139, 725
Research	32, 604	66, 500
Training	4, 052	12, 350
Technical assistance and control operations	30, 854	60, 875

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[1] Appropriate explanatory footnotes are included with the categorical program tables to which reference should be made.

HIGHLIGHTS OF PROGRESS IN ENVIRONMENTAL HEALTH

Mr. FOGARTY. Since this is the last item in the area of environmental health, we will insert the highlights statement you have prepared for the committee in the record at this point.

(The statement referred to follows:)

HIGHLIGHTS OF PROGRESS IN ENVIRONMENTAL HEALTH

I. AIR POLLUTION

Highlights of progress on the air pollution problem during the past year include—

Significant levels of oxidant—a photochemical "smog" constituent—were found in the air in Birmingham, Washington, Tucson, Phoenix, Sacramento, Fresno, Richmond, and other cities.

Automatic sampling equipment was developed for the continuous measurement of carbon monoxide, nitric oxide, nitrogen dioxide, oxidant, hydrocarbons, sulfur dioxide, and ozone. This equipment is now in use in Washington, Philadelphia, Cincinnati, Detroit, Chicago, New Orleans, and San Francisco. Previously, only in Los Angeles have all of these pollutants been measured continuously.

Data were obtained which will enable an investigator to determine how many samplers are needed, where they must be located, and how long they must operate, to characterize accurately the air pollution present in a particular urban area.

The Automobile Manufacturers Association accepted the need for blowby devices which will reduce hydrocarbon emissions from automobiles by about 30 percent and recommended that the manufacturers place these devices on all 1963 model cars.

A proportional sampler for automobile emissions and a driving analyzer were developed. These have significance as research tools, enabling investigators to obtain samples of automobile exhaust as it occurs under different patterns of driving. The sampler collects exhaust for measurement and analysis from cars as they drive in normal traffic. The recorded data of driving patterns permit repetition in the laboratory of these experiments with the simulation of driving patterns involving various loads, speeds, and road conditions.

A system of forecasting of potential air pollution buildup previously established for the 36 States east of the Rockies has proven useful to State and local control agencies, industry, and research groups. During the past year techniques have been worked out for the remaining western section of the country and the system is now under trial.

Lead has been found to be present in greater quantities in blood and urine of persons living and/or working in central urban areas than of suburbanites or rural dwellers. The lead concentrations in such body fluids from some occupational groups, such as traffic policemen, were even higher. Also, vegetation nearest highways or major intersections was found to contain the most lead. Lead concentrations in the air of communities appear to be directly related to vehicular traffic and the consumption of gasoline which contains lead. The lead concentrations observed to date in the body fluids of individuals in the general population are below those associated with the development of lead poisoning.

Public Health Service studies in Nashville have shown that persons with asthma are adversely affected by the presence of sulfur dioxide. In asthmatics residing in areas with high pollution levels, attacks occurred most frequently; in patients living in areas of moderate pollution, attacks were less frequent; and in those areas with the lowest air pollution levels, the attacks were least frequent. Similarly, it was shown that, on those days when sulfur dioxide concentrations were high, attacks among susceptible individuals occurred more frequently than on those days when the pollution was low. Even on days of low concentrations of pollution, however, more asthmatic attacks occurred among susceptible persons than on days on which no sulfur dioxide pollution was recorded.

Public Health Service support contributed to progress by other researchers in air pollution. Examples are—

Workers at Stanford Research Institute and the California Institute of Technology have shown that very small quantities of sulfur pollutants increase greatly the numbers of visibility-reducing particles formed in air polluted with automotive emissions.

Dr. Paul Kotin and coworkers at the University of Southern California disclosed the finding of a human type of lung cancer in mice exposed to ozonized gasoline. These animals had recovered from a previous infection with influenza virus, and were then exposed to the pollutants.

Dr. Richard Ehrlich and coworkers at Armour Research Foundation have shown that animals exposed in their laboratory to ozone or nitrogen dioxide were rendered more susceptible to respiratory infection from a bacterium causing pneumonia. Ozone and NO_2 are common constituents of community air pollution and are often present at or near the levels found significant in the laboratory.

Dr. F. C. Dohan, of Radio Corp. of America, using data supplied in part by the Public Health Service, has shown that, among women workers in electronics assembly plants in several cities of the United States, rates of absenteeism due to respiratory illness increase directly with the average atmospheric pollution levels found in these cities.

Dr. Leonard Greenburg, of Albert Einstein College of Medicine, has shown that more than 200 excess deaths occurred in New York City during a severe episode of air pollution in 1953.

True emphysema of the human type has been extremely difficult to produce in laboratory animals. Dr. Jerome Klinerman, of Cleveland, produced the disease with prolonged, intermittent, inhalation of nitrogen dioxide. Although the levels of NO_2 used were higher than those presently found in community air, this finding has considerable importance in relation to the known association between human cases of emphysema and polluted urban conditions. The dramatic rise in incidence of this crippling disease is of real conern.

Statewide air pollution surveys were made in Florida, Georgia, South Dakota, and Colorado. Community surveys were made in Denver, Birmingham, Providence, Lynchburg, Washington, D.C., Jacksonville, Richmond, and in Lewiston, Idaho, and Clarkston, Wash.

Intensive short-term training courses in 18 air pollution subjects given by the Public Health Services provided instruction to 615 individuals, 419 representing State and local agencies, 147 industry, and 49 universities, and other organizations.

A second Public Health Service auto exhaust research facility was activated to accelerate research on this problem as called for in Public Law 86-493, the Automotive Exhaust Research Act.

II. MILK, FOOD, INTERSTATE, AND COMMUNITY SANITATION

1. Research grants

At the June and November meetings of the National Advisory Health Council, 112 applications were presented to the council of which 60 were recommended for approval. Of these, 37 were for new research. Among those approved are: (*a*) three coordinating projects directed toward comprehensive study of the recovery of both pathogenic and indicator organisms from convenience-type foods so that better information will be available for the drafting and application of standards; (*b*) a project which will study the relationship of influent pollution, meteorological variation and tidal conditions on pollution levels in shellfish; (*c*) a comprehensive study on heat transfer in food masses which should provide data of great importance to the food service industry; and (*d*) a project to assess the health effects of high altitude jet travel on post-treatment cases of certain physical conditions.

2. Milk, shellfish, and food-service activities

A. Milk sanitation

(1) *Cooperative State-Public Health Service program for certification of interstate milk shippers.*—As of January 1, 1962, there were 794 shippers shipping raw or pasteurized milk, located in 39 States and the District of Columbia, participating in this program. It is estimated that 8.3 billion pounds of raw milk, and more than 568 million pounds of pasteurized milk were shipped under this program from approximately 125,000 grade A farms.

During calendar year 1961, 161 check ratings in 13 States were made for the purpose of validating the sanitation compliance ratings submitted by the States. In addition, three comprehensive State program evaluations were made. The Public Health Service recertified 33 State rating officers and certified 4 new State rating officers.

(2) *Research.*—Field and laboratory studies of interstate milk shipment practices and procedures in 10 States focused attention on inadequacies in sampling and handling practices. It was found that more attention must be given to cleaning and bactericidal treatment of equipment used, and to methods of sampling milk for bacteriological examination.

Analyses have been made on the effect of linear and logarithmic temperature changes occurring during the heating and cooling cycles of commercial pasteurization equipment as they influence the thermal inactivation of micro-organisms. These data are essential for the development of proper controls on ultrahigh temperature pasteurization processes.

A simple modification has been made in the traditional phosphatose test for underpasteurization of milk, which overcomes serious difficulties in the examination of dairy products exposed to ultrahigh temperature processes. The modified test prevents reject of adequately pasteurized products due to the false-positive results given by older test procedures.

(3) *Radionuclide contamination.*—As part of the cooperative endeavor with the Division of Radiological Health the radiation surveillance activity was expanded during the calendar year by increasing the 59 sampling stations to 62 stations. During the Russian nuclear testing period, the monthly collection of samples was accelerated to collection of daily samples from 6 stations, collection of samples three times a week from 12 stations, and collection of samples twice a week from 42 stations. Since January 1, 1962, all sampling stations are collecting samples weekly.

B. Shellfish sanitation

(1) *Voluntary State-Public Health Service program for certification of interstate shellfish shippers.*—As of January 15, 1962, a total of 1,354 interstate shellfish shippers in the United States and Canada had been certified to the Surgeon General on the basis of their products meeting the recommended Public Health Service standards.

During calendar year 1961, the control program of each shellfish producing State was reviewed with the responsible State officials. Comprehensive field evaluations have been completed in nine of these States, and this type of intensive field surveillance is being continued.

The Public Health Service sponsored a national conference on shellfish sanitation. The conference was attended by 140 persons representing 22 States, the District of Columbia, the shellfish industry, other interested Federal agencies, and the Governments of Japan and Canada.

At the request of the Department of State, a Public Health Service mission, consisting of a sanitary engineer and a bacteriologist, made a 1-month appraisal of shellfish sanitation measures in Hiroshima Prefecture, Japan. Recommendations were made to the Government of Japan, through the Department of State, for improvement of the program.

(2) *Investigation of disease outbreaks.*—The engineering staff of the shellfish program collaborated with the medical staff of the Communicable Disease Center and with personnel of the Mississippi, Alabama, and New Jersey State Health Departments in the investigation of cases of infectious hepatitis associated with the consumption of raw oysters and clams.

The staff collaborated with CDC and with the Florida State Board of Health. in the investigation of a small number of typhoid fever cases in the Apalachicola Bay area. Following the investigation, steps were taken by the Florida State Board of Health to control the potential hazard resulting from these cases through the temporary placement of restrictive measures on the local shellfish industry.

At the request of officials in the State of Maine, assistance was provided to the State agencies in expanding paralytic shellfish poison surveillance. This expansion was necessitated by the unusually high levels of poison reported in the State's shellfish growing areas in calendar year 1961.

(3) *Research.*—An experimental device has been perfected for the ultraviolet radiation of sea water, which makes feasible the purification of live oysters in the shell when the shellfish are subjected to irradiated water.

A rapid simple test based on the selective detection of fecal coliform bacteria at elevated temperatures has been found superior for determining sewage pollution of shellfish and shellfish growing waters.

(4) *Shellfish sanitation research centers.*—Sites have been selected and preliminary plans completed for the shellfish sanitation research centers at Narragansett, R.I., and Dauphin Island, Ala. Target dates for the contract award are May 9, 1962, for the Rhode Island facility, and May 30, 1962, for the Alabama facility. Target dates for completion of construction are May 9, 1963, for the Rhode Island center and April 1, 1963, for the Alabama center.

C. Food-service sanitation

(1) *Sanitary control of food service operations.*—A new food service sanitation ordinance and code, designed to reflect technical developments, research findings, and new knowledge on the ecology of foodborne disease has been completed and will be published during the next few months.

(2) *Training of State and local personnel.*—Public Health Service staff participated in 26 training courses and seminars on food sanitation in 1961. These courses were attended by more than 1,200 persons from State and local health agencies and from industry.

(3) *Program evaluations.*—Upon request, comprehensive evaluations were made of the technical and administrative aspects of 10 State and 14 local food sanitation programs. Based on these evaluations, recommendations were made for program improvements. Eleven State officials were trained in methods used for evaluating the effectiveness of local food sanitation programs.

(4) *Sanitary design and construction of equipment.*—The Public Health Service participated with a number of public health agencies and industry in the development of 11 standards covering the sanitary design and construction of food-service equipment, vending machines, and baking equipment.

(5) *Surveillance of radioactive contaminants in foods.*—Under cooperative arrangements with the Division of Radiological Health, and as part of the surveillance activity, a project to evaluate the dietary intake of specific radionuclides by selected age groups was initiated. The 8-station pilot network was expanded to 16 stations.

(5) *Research.*—The responses of common types of food-poisioning bacteria to both cold and hot temperatures have been determined in foods inoculated and tested under controlled conditions simulating commercial practice. These data have been utilized in revising the recommendations on storage, preparation, and serving of potentially hazardous foods.

Bacteriological examination of 1,739 samples of meat purchased from retail markets revealed that 17 percent of poultry, 4 percent of pork, 3 percent of lamb, and 1 percent of beef specimens contained types of salmonellae organisms considered infectious for man. These bacteria were not found in thoroughly cooked meat products. An outbreak of this disease resulting from inadequately refrigerated ham was encountered during this study.

3. Interstate carrier, general engineering, and environmental health planning

A. Interstate carrier

During the past year a new dining car grading program was initiated with the objective of furnishing evidence of operational sanitation on a comparative basis for the information of both dining car crews and the traveling public. After the first 6 months of operation 959 of 1,110 cars were graded. A somewhat similar grading program of sanitation facilities aboard vessels was carried out in 1961 with the grading of 1,089 vessels. There were 806 samples of water collected aboard conveyances during 1961, of which 66 proved unsatisfactory.

The first phase of a survey was completed of water quality data collection from 193 public water supply sources. Of special value was the determination of vanadium, latest element to be linked to heart disease. The Division of Environmental Engineering and Food Protection entered into an agreement with the National Cancer Institute to furnish them, for experimentation, organic chemical extracts from cities where unusually high evidence of bladder cancer has been noted.

B. General engineering

In cooperation with the Office of Education, "Environmental Engineering for the School," a guide for school and public officials in planning adequate environmental facilities to serve the 35 million primary and secondary school students of the Nation was produced.

New technical publications also include supplement D (1958–59) to the "Refuse Collection and Disposal," an annotated bibliography of technical publications in the solid wastes field. The "Manual of Septic Tank Practice" was updated by the addition of addendum No. 2, dealing with revised recommendation in absorption field design based on recent studies. An interagency manual, "The Role of the Federal Government in the Field of Public Recreation," was produced by the Public Health Service acting for the Federal Interagency Committee on Recreation. A proposed "Recommended Standard for Sanitary Landfill Operations" was developed jointly by personnel of the Division of Environmental Engineering and Food Protection and the Communicable Disease Center, and has been distributed to the American Public Works Association, other professional groups, and local public health and public works personnel for their comments and recommendations.

C. Environmental health planning for metropolitan areas

The "Environmental Health Planning Guide" was designed for use by health departments, planning or public works agencies, and by nongovernment civic groups in performing nondetailed evaluation of those aspects of community development which concern the healthfulness of the environment. Over 2,000 copies have been requested and distributed.

An environmental health study of the Seattle-King County, Wash., area was started in mid–1961. Requested jointly by the local and State health departments, this study will assess the current environmental health problems and estimate their magnitude by 1970. It will also measure the effectiveness of local activities projected against future environmental health needs.

4. Arctic Health Research Center

A. Biochemistry and nutrition

(1) The data from a detailed study of food intake of Eskimo and Indians, completed this year, is now being mechanically processed at the University of Alaska. Analysis of the results will be of great value in numerous studies of heart disease, anemia, and other nutritionally related conditions.

(2) A study is now underway to determine whether the almost complete absence of diabetes among fullblood Eskimos of western Alaska is an hereditary trait.

B. Entomolgy

Investigations to establish the role of Alaskan mosquitoes as vectors of disease were begun in the Fairbanks and Fort Yukon areas of the interior, in collaboration with Rocky Mountain Laboratories.

C. Environmental sanitation

(1) Research relative to water supply and waste disposal in arctic and subarctic areas has been intensified and expanded.

(2) Collection of data on experimental houses designed for arctic conditions has been completed and is now being analyzed. This information will be valuable for development of economical and functionally adapted houses for the arctic environment.

D. Epidemiology

(1) Brucellosis has been found in the acute stage this year in hunters who have long depended largely on wild caribou for meat. The center is extending its study of this disease, in cooperation with the Alaska Division of Fish and Game to the experimental infection of domestic reindeer to learn about its effects on these animals, now of considerable economic importance to Alaska.

(2) The center has reestablished its virus laboratories and has begun a study to determine the role of some of the common viruses as cause of respiratory diseases, which account for more illness and deaths among Alaskan native peoples than any other single category of disease.

(3) The parasite causing severe liver damage, *Ecchinococcus multilocularis*, has now been found on St. George Island, one of the Pribilof Islands. Here the brown lemming acts as the intermediate host. This animal is universally found in arctic areas of the circumpolar regions, except the Scandinavian countries, thus making possible the spread of this serious parasite over the entire arctic and subarctic, wherever this animal is found.

III. OCCUPATIONAL HEALTH

1. Study of silicosis

Fieldwork in the reevaluation of the silicosis problem in the metal mining industry was completed, and the extensive data are now being analyzed by the Division of Occupational Health and the Bureau of Mines. Fifteen thousand metal miners were examined, representing 57 percent of the underground miner population employed in 1959. Environmental conditions were studied in 60 mines. The findings of this study will form the basis for more accurate estimates of the prevalence of silicosis and indicate areas in which further effort is required to control this disease.

2. Uranium miners

Continuing in its 12th year, the study of uranium miners yielded more conclusive evidence pointing to a lung cancer hazard. Among miners in our long-term study group the number of deaths due to lung cancer has doubled in the past year. Intensive study is being made to determine whether cytologic analyses of the sputum can be used for the early detection of lung cancer in this group of workers. Contracts were negotiated with the States of New Mexico and Colorado and with nongovernmental research facilities to complement the clinical studies and control efforts.

Further attention to the problem and the need for effective control measures was directed by frequent meetings and training courses for Government and industry officials. Three courses for 200 uranium mine and mill operators and monitors were conducted by the Division, and over 10,000 copies of an educational pamphlet were distributed to mine personnel. Many of the mining companies have intensified their control efforts resulting in some overall improvement in environmental conditions in the mines.

3. Noise-hearing study

The report on a long-term study on the relationship of industrial noise to hearing acuity in a controlled population was published. The findings are expected to be of considerable value in establishing standards for conditions under which men can be employed for their entire working lifetime without developing hearing impairment due to excessive noise. Standards of various types have been proposed by a number of authorities. This study supplies important data with which to test these proposals. The findings have helped substantiate some suggested standards and have pointed out weaknesses in others.

4. Laboratory research

Studies of the mechanisms of toxic stress included a continuing evaluation of the long-term effects of toluene diisocyanate (TD), a chemical responsible for strong immunologic reactions. The importance of metal nutrients in the mechanism of carbon disulfide toxicity was also demonstrated. Dermatologic studies of epoxy, polyester, and polyurethane resins have led to the development of nonirritating patch testing concentrations and diluents as a diagnostic aid in distinguishing between allergic and primary irritant dermatitis. Other toxicologic studies were directed toward development of acceptable standards of exposure to oil mists.

5. Training

As part of an intensified training program, 15 separate courses were presented with a combined attendance of 435 persons. Basic 2-week training courses for industrial hygiene engineers and chemists, which for many years have been offered once annually, were presented four times. In addition, four advanced courses in lead analysis and control of noise, analysis of free silica, and dust evaluation techniques were offered. Special courses were held for various groups, including governmental occupational health directors and local health officers.

6. Consultative and technical services

During the year, field consultations and technical services were provided on over 100 different occasions in 30 States. More than one-third of these services resulted from requests for assistance in the investigation of suspected occupational diseases or hazards to health in industry; the others dealt with administrative and informational aspects of occupational health programs.

Among these services, assistance was given to a State health department in investigating complaints of hazardous occupational lead exposures at a lead salvage plant where 9 of 57 employees had excessive blood levels. As a result of compliance with engineering and medical recommendations, only three workers showed signs of lead absorption at the time of a followup visit.

IV. RADIOLOGICAL HEALTH

Research

The San Juan Basin research project is out of the pilot phase. Food and fecal specimens have been collected from 100 families. Bone and teeth samples have also been collected from the local area. Preliminary analysis is being completed. Techniques for assessing radium body burdens are being evaluated in a population exposed to higher than normal levels over a 15-year period. Equipment has been developed for the measurement of body burden using radon breath measurements. Evaluation tests are currently being conducted on this equipment.

A nationwide, cooperative thyrotoxicosis therapy followup study is underway to investigate the late effects of treatment of overactive thyroid with radioactive iodine. Twenty hospital and university medical centers are participating in this study. Four centers have successfully completed pilot phase operations. The centers currently under contract are now in operation with results being reported on a monthly basis. This study will cover a sample population of 40,000 patients and will last 5 to 10 years.

The Medical X-ray Research Laboratory has been established at Rockville, Md., to conduct research in the area of exposure to patients from X-ray and fluoroscopic machines. Equipment has been developed which will indicate to the doctor when the machine is delivering a higher level of X-ray to the patient than the doctor planned.

The pilot phase of the cooperative Public Health Service-Atomic Energy Commission-Department of Agriculture project for developing a feasible, economic process to remove radionuclides from milk has been completed. Work is now underway on developing a commercial scale process. Nutritional studies have been started to assure that the removal of strontium 90 does not lower the nutritional content of the milk.

The first phase of a research project dealing with dogs and rabbits subjected to in utero radiation exposure has been completed in our Montgomery, Ala. laboratory. Evaluation of the preliminary data tends to show some change in birth weights and some neurological damage. These early findings will be explored more intensively.

State Assistance Branch

The number of State assignees has been increased from 12 to 27.

A Radiation Surveillance Control Center has been established to coordinate and expedite the collection and dissemination of radiation surveillance data from many sources, including the radiation surveillance network. The number of sampling points in this network has been increased from 45 to 65 and all points have been placed on a daily schedule.

Through December 1961 the dental X-ray survey program has shipped 19,300 surpaks to be used in State survey programs. This compared with 9,500 surpaks sent to 16 States in the first full year of operation. In addition, filters and collimators to correct 30,000 X-ray machines have been sent to the States as compared to 900 machines last year. The program has now been extended to 24 States, with plans to include 4 more States by the end of the year (Rhode Islnad, California, Nevada, Kansas).

Laboratory and surveillance activities

The Radiological Health Laboratory at Rockville, Md., which was opened last year, has been doubled in capacity by the addition of two floors to the original structure. This will allow the expansion of training activities and certain research and surveillance laboratory projects.

The Public Health Service has opened a laboratory in Winchetser, Mass. The primary functions of this laboratory are environmental sampling analysis and refinement of radiochemical analysis, especially carbon and tritium. It will also provide laboratory training for State and local health department personnel.

The institutional food sampling program now receives samples from 22 institutions around the country. Analysis of these samples is handled by the Southeatern Radiological Health Laboratory in Montgomery, Ala., and the

Southwestern Radiological Health Laboratory in Las Vegas, Nev. Samples are analyzed for total radiactive content and these data then are related to the computation of average total intake of the population.

The Southwestern Radiological Health Laboratory has recently acquired a new building on the campus of the University of Southern Nevada. This will enable it to consolidate several activities which were previously at varied locations in temporary quarters.

The aerospace program, located at the Southwestern Radiological Health Laboratory has now received the special trailers which are being outfitted as mobile laboratories. It is planned that these mobile laboratories be taken directly to the sites used for testing aerospace nuclear devices, and they will be used to analyze the very short-lived nuclides expected to be found in the effluent from these devices. These laboratories are expected to be operational by spring.

Training

A training staff at the Rockville Laboratory has been formed which is conducting courses emphasizing medical aspects of radiation and X-ray exposure protection. In 1962 an estimated total of 1,500 persons, including over 800 health agency personnel, will be given technical short-term training in the 20 different courses totaling over 60 course weeks in duration. When compared to 1961, this represents an increase of 15 course weeks of training available to approximately 500 more persons. These courses were given at a number of different locations and almost one-fourth of these courses were conducted in field installations in an ever-increasing effort to reach more State and local health agency personnel.

In 1961 a program of training grants to institutions was started. This program is aimed at supporting new radiological health or curricular strengthening existing courses. In the first year, grants were awarded to 15 schools which provided for the training of 40 radiological health specialists.

Radiological health technician training programs have been supported at two colleges in a pilot attempt to formulate a model 2-year curriculum. Staff members of the training branch, under concurrent appointments as instructors at Montgomery Junior College in Takoma Park, Md., will have given four accredited radiological health courses constituting the completion of the first radiological health technician curriculum ever offered anywhere.

The University of Nevada, under contract with the Division of Radiological Health (DRH) is developing a model curriculum for radiological health technician training programs.

Twenty-four commissioned officers are currently engaged in full-time long-term radiological health related training programs at selected universities. Through these duty assignments, DRH is raising the level of the staff competency.

Some 35 commissioned officers and civil service personnel of DRH are enrolled in extramural, part-time training during the fall (1961) term. The areas of study under this program are diverse, including transistor technology, chemistry, electronic data processing, and radiobiology.

A Training Materials Development Section was initiated late in 1961. Visual aid and graphic services are provided to other branches and for use of DRH staff in special briefiings, technical reports, and publications.

A new library has been developed of audio-visual training aids, including films, slides, charts, and photographs related to the field of radiation. Distribution of such aids is made to DRH regional consultants and field laboratories, and State agencies as required.

The progress of this program in stimulating and assisting in the development of radiological health training programs is reflected in the fact that DRH course manuals are currently in the use of some 12 universities.

V. WATER SUPPLY AND WATER POLLUTION CONTROL

1. *Comprehensive water pollution control activity recent highlights*

Conduct studies to comply with the 1961 amendments to the Water Pollution Control Act that recommendations on storage of water for streamflow regulation to control water quality must be made for all planned Federal reservoirs.

Continuance of the Great Lakes-Illinois River Basin project, the most complex and precedent-breaking comprehensive project undertaken to date, where already specific technical recommendations for control of pollution in and near Chicago have been given to the Department of Justice.

Continuance of the Arkansas-Red River project, where recommendations have already been instrumental in reducing by several thousand tons per day the flow of salts in the streams of Oklahoma and Texas.

Initiation of the Delaware Bay-River Basin project to meet the need for a completed water quality management plan for the lower Delaware River Basin.

Expansion of the Columbia River Basin project, to permit the undertaking of laboratory analysis and the conduct of field studies in several basins.

Continuance of the Chesapeake Bay-Susquehanna River Basin project.

2. *Enforcement*

Enforcement activities undertaken in the past year include formal conferences on the Colorado River (second session), North Platte River (Nebraska-Wyoming), and the Raritan Bay (New Jersey-New York).

The conference on the Raritan Bay, involving an approximate land area of 36 square miles in New York and 200 square miles in New Jersey constitutes an extremely important water source to the 1½ million persons residing in the four adjacent counties. Enforcement action was instituted after numerous cases of infectious hepatitis were reported and traced to the eating of raw clams taken from the bay.

A court order has been obtained on the Missouri River (St. Joseph area) as a result of the first suit filed as a part of the enforcement procedure under the Federal Water Pollution Control Act.

Following the passage of Public Law 87–88, the Secretary called a conference on January 16, 1962, on the Puget Sound area, the Strait of Juan de Fuca and their tributaries, and the upper Columbia River and its tributaries within the State of Washington.

By letter of December 6, 1961, the Governor of the State of Michigan requested action under section 8 of the Federal Water Pollution Control Act, to assist the State of Michigan in correcting sources of pollution coming into the Detroit River and subsequently into Lake Erie. The Secretary replied by letter of December 19, 1961, that we would comply with his request.

3. *Research*

Highlights in the research program of the past year have been significant developments in the tools of water pollution control:

A simple modification of the conventional activated sludge waste treatment process has been developed which can remove a large part of the nitrogen which otherwise would reach surface waters to stimulate the growth of nuisance algae. Full scale field testing showed the process to be even more effective than predicted on the basis of laboratory testing. The process actually reduced treatment costs while maintaining high levels of performance.

Small pilot tests have established the maximum concentration of various heavy metals in industrial sewage that can be tolerated in municipal sewage without destroying treatment plant performance. Results show that permissible concentration of chromium, copper, nickel, and zinc are generally higher than believed earlier. These findings contribute to more effective waste treatment and permit more liberal adjustment of restricted regulations.

Evaluations have been made of a pollution potential of outboard motor exhausts released near the propeller and churned into the water. Where boating on restricted waters is intense, undesirable tastes and odors have been detected in the water but the most noticeable effect was the unpalatable flavor in fish.

An improved technique, developed to more precisely measure intensity of odor in water, showed that all the different odors in a water system combined to cause a more disagreeable smell than caused by the many of the pollutants alone. This finding permits more precise prediction of the effect of new waste when discharged to a watercourse.

Several processes for the renovation of used water have been partially evaluated. Although problems of economics and mechanics remain, both distillation and freezing are feasible processes that will produce clean waters; foaming is effective in removing detergents and some other pollutants and activated carbon will remove organic contaminants. Electrodialysis and ion exchange also show promise from their preliminary evaluations.

Epidemiological studies on the effects of water quality show that, of the 20 leading causes of death, 8 are correlated with the mineralization of a city's water supply. Diseases of the heart show the greatest difference, with lower death rates in cities with higher dissolved solids. Smaller cities are more likely to use ground water which is usually more mineralized and the size of the city has been found to be correlated with the same death rate.

The fecal coliforms test procedure to identify bacteria characteristic of the intestinal tract of warmblooded animals has been streamlined as a new tool by differentiating pollution of animal and human sources from landwash, vegetation, and soil sources. Other tests also have been improved to differentiate species of fecal streptococci so that gross estimates can now be made of pollution from human sources distinct from animal sources.

Techniques for working with viruses in the laboratory were furthered by the finding that widely dispersed virus particles can be concentrated on living cells suspended in a flow-through chamber. This laboratory procedure shows promise of providing a means for estimating viral content of fluids much more accurately than any other known method. Using these techniques of sampling and testing, it has also been found that polio type I virus can be removed effectively in ground water traveling at low rates through sandy soil.

It has been demonstrated that evaporation control chemicals, applied as a molecule-thick layer to the water surface of reservoirs, can be protected from bacterial destruction by small amounts of silver stearate mixed with the control chemical. By making the film chemical unattractive as bacterial food the silver stearate extends the control chemical's life, increases the volume of water saved from evaporation, and decreases the cost of conserving water.

Acute toxicity to valuable fishes has been determined for 15 synthetic organic chemicals that are either actual products or wastes of the petrochemical industry. On the average, they are shown to kill at concentrations of 30 to 60 parts per million, but one is so toxic that it would be destructive at 10 parts per million. The toxicity of several promising waterweed control agents has been similarly evaluated. The resulting information establishes what precautions are necessary in weed control programs now carried out by various agencies.

Experiments have found that the surface active agent of synthetic detergent, commonly known to resist bacterial action in sewage treatment works, decomposes readily when applied to the soil at proper rates. Design criteria are being established for so using soil that maximum destruction of resistance organics such as detergents or pesticides is obtained.

4. *Basic data program*

Progress has been made as follows:

Water quality data now are being obtained regularly from 99 key sampling points on important interstate waters—up 23 from the 76 sampling points established in the first 3 years of the program. By the end of 1962 we anticipate having 125 stations submitting this information. Data collection in the past year has required about 110,600 water quality determinations on 11,300 samples of water.

Regular reports on water and sewer bond sales, added to reports on construction, have continued to supply valuable economic data on water quality management.

Collection, publication, and analysis of inventories of water and waste treatment facilities have been made truly national in scope, and are operating on a reliable schedule.

Data on fish kills caused by polluted water are being assembled routinely and have given added impetus to the cause of water pollution control.

The inventory of waste water disposal practices at Federal installations throughout the United States is nearly completed and will be issued within a few months as scheduled.

5. *Technical assistance*

Initiation of three projects, in cooperation with local authorities at Jackson, Miss., Indianapolis, Ind., and San Diego, Calif., to determine the effects of recreation activities upon the quality of waters where these activities occur.

Expansion of field studies of contamination of water supplies by pesticides, conducted in cooperation with State and other Federal agencies to encompass a wider geographic area and a greater variety of pesticides.

6. *Grants for water pollution control*

Increased grant funds made available for fiscal year 1962 have permitted the States to undertake a large number of new projects which had previously been held in abeyance.

Examples are special studies and investigations relating to such problems as acid mine drainage, shellfish, and estuarine pollution. General program improvement is illustrated by the extended data gathering systems, intensified enforcement activity, and staff enlargement in many States.

7. *Research grants*

In 1962, the number of research grants awarded increased to 150 from 144 in 1961.

Significant accomplishments are already resulting from investigations supported by research grants. Progress has been reported in developing a new systems analysis technique by Professor Logan, at Northwestern University, Evanston, Ill., which will enable engineers to design the most efficient and economical sewage treatment plant to specified conditions. Research findings reported by Professor Geyer, at Johns Hopkins University, are enabling water resources management to accurately predict quality changes within impoundments and relate these to abatement of downstream pollution.

A water reclamation project, using the controlled growth of algae in sewage, conducted successfully by Professor Oswald, at University of California, also has shown the feasibility of producting protein feed for animals as a byproduct. Research studies by Professor Heukelekian, at Rutgers University, are demonstrating the effect of agricultural poisons on water quality and methods for the analysis and removal of these contaminants.

8. *Demonstration grants*

These grants are awarded to agencies and institutions for a support period of 3 years.

This program is being initiated in 1962 with a budget of $300,000. This amount will support 6 grants, leaving an estimated backlog of 14 approved applications requiring $700,000. During 1963, the proposed budget of $500,000 is expected to support the continuation of the six grants initiated in 1962 at a higher cost of $450,000, leaving enough funds to support one new project.

With an estimated approval of 30 new demonstration projects during 1963, there will be a total backlog of 43 grants requiring $2,150,000 for support.

The first demonstration grant project, "Feasibility of Waste Disposal in Marine Environment," has been awarded. This is a joint undertaking by the Allen Hancock Foundation and the State of California Water Pollution Control Board ($33,000), with Public Health Service demonstration grant contribution of $80,000. This project bridges the gap between research and application and is designed to measure and establish rates of sewage assimilation in a coastal area so that the information may be used by engineers in the design of ocean outfalls. It will also demonstrate the biological, chemical, and physical changes in the environment surrounding the outfall under specific conditions.

9. *Waste treatment works construction grants program*

The 3,236 projects approved to January 15, 1962, will improve the quality of water in over 33,000 miles of stream for use as public and industrial water supplies, propagation of fish and wildlife, recreation, agricultural, and other legitimate uses.

	Number	Estimated project costs (in millions)	Grants made or requested (in millions)
Grant offers made (July 30, 1956–Jan. 15, 1962)	3, 236	$1, 553. 9	$267. 0
Projects under construction	739		
Projects completed	1, 823		
Projects awaiting construction	650		
Additional applications being processed in regional offices and State agencies	712	536. 2	85. 5
Total applications approved and in process	3, 948	2, 090. 1	352. 5
Activities during calendar year 1961:			
Grant offers made	681	333. 3	57. 8
Projects placed under construction during year	561		
Projects completed during year	512		

WEDNESDAY, FEBRUARY 7, 1962.

AFTERNOON SESSION

HOSPITALS AND MEDICAL CARE

WITNESSES

DR. MYRON D. MILLER, CHIEF, DIVISION OF HOSPITALS
DR. HOWARD D. FISHBURN, CHIEF, MEDICAL OFFICER, COAST GUARD
DR. JAMES V. LOWRY, CHIEF, BUREAU OF MEDICAL SERVICES
DR. LUTHER L. TERRY, SURGEON GENERAL
JAMES F. KELLY, DEPARTMENT BUDGET OFFICER

Object classification

[In thousands of dollars]

	1961 actual	1962 estimate	1963 estimate
11 Personnel compensation:			
Permanent positions	33,576	35,273	35,512
Positions other than permanent	541	549	549
Other personnel compensation	1,179	1,153	1,154
Total personnel compensation	35,296	36,975	37,215
12 Personnel benefits	3,963	4,110	4,157
21 Travel and transportation of persons	496	397	394
22 Transportation of things	518	430	428
23 Rent, communications, and utilities	974	967	969
24 Printing and reproduction	98	99	99
25 Other services	3,784	3,647	3,850
Services of other agencies	1,913	1,973	2,093
26 Supplies and materials	5,502	5,587	5,733
31 Equipment	1,466	1,423	1,430
41 Grants, subsidies, and contributions	1,209	1,210	1,210
42 Insurance claims and indemnities	2		
Subtotal	55,222	56,818	57,578
Deduct quarters and subsistence charges	426	440	440
Total obligations	54,795	56,378	57,138

Personnel summary

	1961 actual	1962 estimate	1963 estimate
Total number of permanent positions	6,838	6,976	6,990
Full-time equivalent of other positions	115	115	115
Average number of all employees	6,382	6,652	6,686
Number of employees at end of year	6,876	7,017	7,031
Average GS grade	4.9	4.9	4.9
Average GS salary	$5,074	$5,075	$5,081
Average salary of ungraded positions	$4,404	$4,579	$4,473

Program and financing

[In thousands of dollars]

	1961 actual	1962 estimate	1963 estimate
Program by activities:			
1. Inpatient and outpatient care	48, 453	50, 259	50, 709
2. Dependents' medical care	2, 949	2, 422	2, 657
3. Coast Guard medical services	1, 370	1, 371	1, 446
4. Operation of health units	721	850	850
5. Personnel detailed to other agencies	264	276	276
6. Payments to Hawaii	1, 200	1, 200	1, 200
Total program costs [1]	54, 957	56, 378	57, 138
Change in selected resources [2]	−162		
Total obligations	54, 795	56, 378	57, 138
Financing:			
Comparative transfers to other accounts	6, 907		
Advances and reimbursements from—			
Other accounts	−5, 273	−5, 862	−6, 218
Non-Federal sources (42 U.S.C. 221)	−682	−681	−661
Unobligated balance lapsing	276		
New obligational authority (appropriation)	56, 023	49, 835	50, 259

[1] Includes capital outlay as follows: 1961, $1,379 thousand; 1962, $1,423 thousand; 1963, $1,647 thousand.

[2] Selected resources as of June 30 are as follows:

	1960	1961 adjustments	1961	1962	1963
Stores	516		678	678	678
Unpaid undelivered orders	698	647	1, 021	1, 021	1, 021
Total selected resources	1, 214	647	1, 699	1, 699	1, 699

Mr. FOGARTY. The committee will come to order.

We have with us this afternoon the request for appropriations for "Hospitals and Medical Care."

GENERAL STATEMENT

Dr. Miller, are you going to give us a statement?

Dr. MILLER. Yes, sir.

Mr. FOGARTY. All right, go right ahead.

Dr. MILLER. I have a statement I would like to file and, with your permission, I would like to give a brief summary of that statement.

(The prepared statement follows:)

STATEMENT BY CHIEF, DIVISION OF HOSPITALS, ON "HOSPITALS AND MEDICAL CARE"

INTRODUCTION

Mr. Chairman and members of the committee, my statement is on behalf of the Division of Hospitals, which administers a program of health and medical services to beneficiaries as authorized through legislation enacted by the Congress.

The U.S. Public Health Service hospitals trace their origin to the act signed by President John Adams on July 16, 1798, "For the relief of sick and disabled seamen." This legislation established the old Marine Hospital Service which became the foundation on which the present Public Health Service was built. The following year, in Boston, a merchant seaman received the first treatment administered under the act. Since then, there has not been a single break in the continuity of the Public Health Service medical care program.

Services for the U.S. Coast Guard and American Seamen have been provided since the initial legislation of 1798; for commissioned officers of the Public Health Service, and their dependents, since 1889; for Federal employees injured in line of duty since 1916; for leprosy patients since 1917; for officers of the Coast and Geodetic Survey since 1919; and for persons addicted to narcotic drugs since 1929. This appropriation also provides for reimbursement to the State of Hawaii for the care of patients with leprosy in the Hawaiian Islands.

In addition to these beneficiary groups, medical services are furnished on a reimbursable basis to many others including members of the Armed Forces and their dependents under the medicare program, foreign seamen, certain beneficiaries from other Federal agencies including the Immigration and Naturalization Service, Bureau of Prisons, State Department, Maritime Administration, Veterans' Administration, and others. Services also are provided for Federal employees under the Federal employee health program.

FUNCTIONS AND BENEFITS TANGENTIAL TO MEDICAL CARE PROGRAMS

The hospitals and medical care program provides many additional beneficial services and functions in addition to its primary purpose of providing medical care for the above groups. This program has for years had a major role within the Service in the recruitment and training of physicians, dentists, nurses, and other types of health personnel. Indirectly, the training of these professional and health personnel is beneficial in contributing to the Nation's medical, dental, and health manpower. It has been a vital source in providing professional personnel to the U.S. Coast Guard, Bureau of Prisons, Coast and Geodetic Survey, and many other departments of the Government.

An examination of the personnel on duty in the Public Health Service discloses the extent to which the Division has in the past and currently provides professional specialists to others. Many key personnel of the Service received training in the Division's hospitals and clinics. Other programs of the Government are frequently dependent upon this Division of the Public Health Service as a source of personnel, trained in the various medical and other specialties.

The tangential contributions of the hospitals and medical care program are therefore of prime importance to the Service, the Department, and the Nation, and must be considered together with its direct medical care program.

PROGRAM IMPROVEMENTS

For 1962, the Congress increased the budget estimate by $503,000. From this, additional professional, training, and research personnel have been provided, affording clear-cut assistance to the hospitals and to the programs they are developing. The increased funds have further made possible the improvement of cooperative relationships with universities and medical colleges. These affiliations are of considerable value in the furtherance of medical education, in the provision of exemplary consultant services, in the development of medical research, and in making available a fuller service to our patients.

There exists no generally acceptable yardstick for measuring specific personnel needs in our hospitals, in terms of physical structure, program, and patient care activities. A study was therefore initiated in 1960 to develop objective measures of relating hospital staffing requirements to type and volume of workload.

Once the survey technique has been fully developed, firm estimates can be made that will show needs on a hospital-by-hospital basis.

Appraisal of staffing and operating programs, relative to effectiveness, economy, organization, and functional arrangements, is a continuing process in the Division of Hospitals.

PATIENT LOAD TRENDS

Inpatient admissions to the 12 general hospitals have reflected an increasing trend since 1957. There were 43,700 in that year. In 1961, they totaled 45,000 and are estimated to reach 45,600 in 1963.

Length of hospital stay, however, has been reduced. This benefits both the patients, enabling them to return to their jobs sooner, and the hospitals by resulting economies in operations. In 1957 the average length of stay was 22.9 days per patient. In 1961, it was 20.6 days, a decrease of about 10 percent.

While more patients are being admitted and treated in our hospitals now than was the case 5 years ago, the reduction in the average length of stay has reflected itself in a drop in the average daily patient load. In 1957 the average number of patients per day in the general hospitals was 2,746. The number in 1961 was 2,543.

Admissions to the leprosarium at Carville have increased from 61 in 1957 to 103 in 1961. Average daily patient load in 1957 was 315; in 1961 it was 285; in 1963 it is estimated to be 300.

The neuropsychiatric hospitals at Lexington and Fort Worth, for the treatment of narcotic addicts and psychotic patients, are showing slight decreases in both admissions and average daily patient loads. In 1957, admissions totaled 4,584; in 1961 the number was 4,424. Average daily patient load in 1957 in the two hospitals was 1,967. It was 1,907 in 1961. The lower figure represents an effort to fit the patient population more nearly to the capacities of the respective facilities.

Outpatient visits to all facilities operated by the Division of Hospitals also have been increasing. In 1957, they were 1,085,000. In 1961, they totaled 1,185,000, which is a 9-percent increase in 5 years. The estimates for 1962 are 1,194,000 visits and for 1963, 1,202,000.

TRAINING

One of the major problems confronting the Nation is that of rapidly developing its health resources, in terms of well-qualified medical personnel and facilities for all related areas of research, training, and service. During the past year, the Division of Hospitals has placed particular emphasis upon its relationships with medical schools and the furtherance of medical education through such affiliations.

Most of the Public Health Service hospitals are located in close proximity to medical schools. Cooperative training and research programs between the hospitals and these universities are being substantially developed.

The Public Health Service recognizes that the highest quality of patient care is that which couples research and training with medical services. The Division of Hospitals conducts training programs in most of the recognized medical and dental specialties, as well as in the many supportive medical and administrative services allied with hospital management.

These programs, as well as those of the colleges of medicine with which our hospitals participate, bring from the universities and research laboratories the most advanced techniques of diagnosis and therapy to the bedside of our patients.

RESEARCH

The prolongation of life and the relief of suffering are inevitably tied to research. It is therefore appropriate that the Division of Hospitals engage in all facets of modern hospital operation including clincal research and professional training. Our hospitals, both general and specialty, provide abundant resources for an excellent program of clinical research.

In 1959, Congress provided $91,000 for the initiation of a research program at the Carville hospital in order to seek out the causes and treatment of leprosy. In 1961 and 1962 funds were appropriated to initiate modest research programs in other hospitals. Today, many types of clinical research programs are being conducted in most of our hospitals; in some, special emphasis is given to specific areas. For example, studies are being conducted at the Staten Island Public Health Service hospital in the study of cardiopulmonary diseases, cancer, surgery, and anesthesiology; at the Baltimore hospital in the etiology of cancer and pulmonary functions; at the San Francisco hospital, research emphasizes the physiology of electrolytes and isotopes, and at the Seattle hospital endocrinology and cardiovascular diseases are stressed; at the New Orleans hospital in the treatment of cancer by isolation perfusion techniques, of tropical diseases, and of cardiovascular disease. Also in New Orleans, joint Tulane-PHS research efforts have centered on myocardial disease of unknown origin as it occurs in young adults. Results thus far indicate that the incidence of survival and return to normal activity for these patients has been improved several fold by the therapeutic program developed by this group.

Included in the 1962 plans are the completion of a research laboratory at the New Orleans hospital, the enlarging and remodeling of the research laboratory of the Seattle hospital, the opening of a cardiopulmonary research laboratory at the Baltimore hospital, and the extension of the leprosy research at Carville, as well as an overall expansion of the research program in other hospitals.

Basically, a need exists for qualified medical personnel to conduct research activities in addition to their clinical responsibilities. At this time, the addition of 12 research positions, plus the necessary supples and equipment, is requested for 1963.

SUMMARY

The hospitals and medical care estimate provides for a net increase of $668,000 which is summarized as follows:

Mandatory items	$104,000
Annualization of positions new in 1962	138,000
Subtotal	+242,000
Program items:	
Increase in operating supplies, inpatient and outpatient care	131,000
Increase of 12 research positions, supplies and equipment	153,000
Additional requirements in dependents medical care	143,000
Increase of 2 positions and contractual services in the Coast Guard activity	74,000
Subtotal, increase in program	+501,000
Decreases: Nonrecurring wage board increases and call to duty of new officers	−75,000
Net change	+668,000

Dr Howard D. Fishburn, chief medical officer, U.S. Coast Guard, is present and available to answer any questions concerning funds included for the Coast Guard under this approrpiation.

Mr. Fogarty. All right, go ahead.

ROLE OF THE DIVISION OF HOSPITALS

Dr. Miller. Mr. Chairman and members of the committee; the U.S. Public Health Service hospitals trace their origin to the act signed in 1798, "for the relief of sick and disabled seamen." This legislation established the Old Marine Hospital Service which became the foundation on which the present Public Health Service was built and has continued to provide medical care to seamen and Coast Guard personnel to this day.

Through the years other beneficiaries have been added. These include Coast and Geodetic Survey officers and crew, leprosy patients, narcotic addicts, Federal employees injured in line of duty, and others. Leprosy care in Hawaii is reimbursed through this appropriation. In addition to these beneficiary groups, medical services are furnished on a reimbursable basis to veterans and other Federal patients.

The Division of Hospitals performs a vital role for the Public Health Service in recruitment and training of physicians, dentists, and other professional personnel. Most of the officers now guiding the Public Health Service were recruited and trained in this hospital system.

INCREASED STAFF

The $503,000 added by the Congress to our request last year has supplied additional staff for direct medical care and research. The increased funds have further made possible the improvement of cooperative relationships with universities and medical colleges. By thus aiding medical education and research, the Division contributes materially to the development of the Nation's health resources.

PATIENT ADMISSIONS

Inpatient admissions to the 12 general hospitals have reflected an increasing trend since 1957. More patients are being admitted and treated in our hospitals now than was the case 5 years ago. However, faster and better care has resulted in a drop in the average patient load. Outpatient visits to our facilities have also increased by 9 percent in the last 5 years. This outpatient increase has created problems because physcial facilities need enlargement and modernization.

CLINICAL RESEARCH

We are making some progress in clinical research in our hospitals, and in cooperation with universities and medical colleges. Training programs have been improved in professional and administrative fields, both in the general and in the speciality hospitals.

For example, in New Orleans, joint Tulane-PHS research efforts have centered on myocardial disease of unknown origin. Results thus far indicate that the probability of survival and rehabilitation has been much improved by the therapeutic program developed there.

SUMMARY OF 1963 BUDGET REQUESTS

To summarize our request for increases, the estimate proposes increased funds to provide the following program additions: $153,000 for 12 research positions with the supplies and equipment needed for their support; $131,000 for increased inpatient and outpatient supplies; $74,000 for Coast Guard medical services to provide two more full-time physicians and for increased fee-basis services where we have no full time staff; and $143,000 for increased dependents' medical care hospitalization expense outside our hospital system.

Dr. Howard D. Fishburn, chief medical officer, U.S. Coast Guard, is present and available to answer any questions concerning funds included for the Coast Guard under this appropriation, and I shall be glad to answer any questions relating to the hospital and medical care appropriation request.

Mr. FOGARTY. Thank you, doctor. The appropriation for 1962 is $49,835,000 and the request for 1963 is $50,259,000. With the adjustments for reimbursements and the proposed supplemental for 1962, you are asking for $668,000 and 14 positions more in 1963 than you have in 1962.

Dr. MILLER. Yes ,sir.

Mr. FOGARTY. There are no reserves placed against your appropriation.

Dr. MILLER. No, sir.

DECREASE FOR WAGE BOARD EMPLOYEES

Mr. FOGARTY. Now I see you have a decrease in 1963 with regard to wage board employees. That is kind of a strange decrease, is it not?

Mr. KELLY. Mr. Chairman, perhaps I should explain that, because it is a matter of budget policy that affects a number of appropriations.

The policy is that, with respect to the current year, that is, the fiscal year 1962, we include as the cost of wage boards, all of those that have occurred and are predicted to occur, in order that we can submit a supplemental to the Congress and obtain the necessary funds to pay for them. But with respect to the budget year, in this instance, the fiscal year 1963, we only include those wage board costs which have actually occurred as of the 15th of September; and any that occur subsequent to the 15th of September or are predicted to occur subsequent to the 15th of September, have to be taken care of in the form of a supplemental. This is a governmentwide budgetary policy.

Mr. Fogarty. Well, it does not make much sense to me. Does it to you?

Mr. Kelly. Well, it apparently——

Mr. Fogarty. This idea is the Bureau of the Budget's, then?

Mr. Kelly. Yes. Apparently, it was adopted in order to avoid submitting to the Congress any costs which were not actually incurred.

Mr. Fogarty. Was this because of someone trying to balance the budget?

Mr. Kelly. No, sir; I do not think so. I do not think the cost involved in the whole Federal Government amounted to a great deal of money. But it is to avoid putting salaries into the budget, except those which have already been classified or those which have already been incurred.

It is a practice not to include any predicted reclassifications except in certain rare exceptional cases, and not to include any predicted wage boards.

The Congress authorized the operation on a deficiency basis, where necessary, to take care of wage boards in order that they could be immediately put into effect when they were approved.

I have, myself, long been in hopes that the executive branch and the Congress would adopt a policy of appropriating a lump sum of money for wage boards that could be distributed among the agencies as needed to avoid the complex supplemental problem that is involved.

Mr. Fogarty. Well, that makes sense to me.

ADDED PERSONNEL FOR RESEARCH

All right, now, let us talk about this magnificant increase that you have this year, Doctor. The way I look at it, it amounts to almost one additional position per hospital.

Dr. Miller. Yes, sir; slightly less than that.

Mr. Fogarty. Twelve new positions and you have 15 hospitals; is that right?

Dr. Miller. These positions are for research purposes only.

Mr. Fogarty. What is the matter with the other three hospitals that you are leaving out? Are they not suitable for research?

Dr. Miller. The 12 positions are not prorated for the various hospitals, but they are distributed where our need is the greatest for research purposes.

Mr. Fogarty. Those that are going to be left out are not going to feel very good about this, are they?

Dr. Miller. I suspect not, sir.

Mr. FOGARTY. I would guess they would feel they are being discriminated against. You say in the justifications, page 14, that this will initiate a research program at the Lexington Hospital in 1963, and strengthen the research activities at the other hospitals. You are going to do all that with an increase of less than one position per hospital?

Dr. MILLER. There is a research program in progress at the Lexington Hospital at this time.

Mr. FOGARTY. It is not much of a program though, is it? How many people do you have working on the project down there?

Dr. MILLER. The program at the Lexington Hospital is being provided by the National Institutes of Health.

Mr. FOGARTY. That is what I thought; on narcotics?

Dr. MILLER. Yes, sir; on narcotics.

Mr. FOGARTY. But you are not doing any research?

Dr. MILLER. Very little of our own, sir.

Mr. KELLY. This committee made it possible through appropriation language that provided, 2 years ago, for the Public Health Service hospitals to apply for research grants and be supported the same as other researchers. And our purpose here is to strengthen the base of the hospital system so that they have a research administrator and coordinator who can assist people in the development of project design and make it more possible for the hospitals to successfully compete for research funds.

Mr. FOGARTY. This narcotics problem is an area that we really need some more research in.

Dr. MILLER. Yes, sir.

Mr. FOGARTY. There are not any real answers to it yet, are there?

Dr. MILLER. Not complete answers; no, sir.

Mr. FOGARTY. Even rehabilitation?

Dr. MILLER. No, sir; you are right.

Mr. FOGARTY. They have not been completely successful?

Dr. MILLER. No, sir. I would say it is not completely successful.

Mr. FOGARTY. Is this hospital full most of the time?

Dr. MILLER. Yes, sir.

Mr. FOGARTY. What is the occupancy rate?

Dr. MILLER. The Lexington Hospital has been more than full. It has had a waiting list throughout most of the year which, at one time this year, I recall, reached 1,000.

Mr. FOGARTY. Is that so?

Dr. MILLER. Yes, sir.

Mr. FOGARTY. Was it right after the war that the waiting list was the highest?

Dr. MILLER. I would like to ask Dr. Lowry to answer that question, Mr. Fogarty.

Mr. FOGARTY. All right.

Dr. LOWRY. Your memory is very good. There was very little addiction during the war and then after World War II, just as it was after World War I, there was an upsurge in addiction and there were long waiting lists.

When I went back to the hospital in 1954, we averaged about 500 men and 500 women on the waiting list at all times.

But this has decreased.

Mr. Fogarty. Is the backlog or waiting list going up again?

Dr. Miller. It fluctuates, sir. There have been times this year when the waiting list has been to the zero point and, as I mentioned, there was a period when it reached a thousand.

Mr. Fogarty. Is that the beginning of winter?

Dr. Miller. Yes, sir.

The medical officer in charge advised me that that was an influencing factor—the climatic conditions.

Dr. Lowry. I would like to say that this is not valid. Because we studied this and found that of 12 years, 4 years showed a higher list in winter, 4 years were higher in the summer, and 4 years were the same, summer and winter.

Mr. Fogarty. Yes.

Dr. Lowry. This is a delusion that persists and I do not think bears scrutiny.

Mr. Fogarty. Sometimes jails are overpopulated when cold weather comes on.

SUPPLY OF ILLEGAL NARCOTICS

Dr. Lowry. I think in this instance there is another important factor and that is the available supply of illegal narcotic drugs.

Mr. Fogarty. I see.

Dr. Lowry. Or if the police are active, then you have people who are running away from the cities and trying to get admitted to the hospital.

Mr. Fogarty. Does that mean, then, that we are doing a pretty good job of keeping this stuff out of the country?

Dr. Lowry. I think every year that the amount that comes in is less and the number of known addicts that are in the country is becoming less each year.

We have not gone back to the level of World War II, but it has decreased from the postwar high. The number of known addicts has decreased about 15,000 in the last 5 years.

Mr. Fogarty. Do you think because of Lucky Luciano passing away, that will have some bearing on the amount that comes in the country?

Dr. Lowry. I think it may help.

IMPROVED MEDICAL CARE

Mr. Fogarty. In your justifications on page 12, you say:

> The hospitals are approaching a level of medical care that is more nearly commensurate with present concepts of modern medical practice in comparable community hospitals.

That does not sound very good to me. I thought we were trying to get these hospitals to the point where they could give first-class medical care.

Dr. Miller. Mr. Chairman, thanks to this committee, we have been able to improve the programs and the operations in our hospitals and provide better medical care.

We are also anxious to bring it up to a level that we feel is the very best possible. And I think the connotation of that statement is that we feel that we are more nearly approaching it than we have been in past years.

Mr. Fogarty. So you are not up there yet?

Dr. Miller. I would say that we hope to improve.

Mr. Fogarty. Is this general or are some up to the proper level and others far short?

Dr. Miller. Relating the nonfirst-class care to the facilities, there are many hospitals which are much more overcrowded than others and this refers primarily to our general hospitals, but not completely so. Some of our hospitals are much older than others, some are much more crowded than others, and most of them need some help.

STATUS OF THE GALVESTON AND FORT WORTH HOSPITALS

Mr. Fogarty. Senator Yarborough sent me a copy of a letter that he sent to the Secretary on December 12, bringing to the Secretary's attention the problems in your hospitals in Galveston and Fort Worth, and your outpatient clinic in Houston. Did you see the letter?

Mr. Kelly. I did, sir.

Dr. Terry. Yes, sir.

Mr. Fogarty. He says they are overcrowded, and they need additional personnel and equipment.

Dr. Terry. We have many such expressions, and I think one can say, in general, that these sort of conditions prevail pretty well throughout our entire hospital system, where we have been restricted over a period of time in not improving our physical plants. Most of them, as you realize, are quite old. And until we get some resolution of the basic policy with regard to the Federal Government's medical care responsibility for American seamen, and therefore get some resolution to the question of modernizing and adapting better our physical plants, we are going to be doing a second-class job, because you cannot do a first-class job in the sort of facilities that we are operating in now.

HOSPITAL MODERNIZATION PROGRAM

Mr. Fogarty. I have had that same complaint about your lack of a modernization program.

Dr. Terry. Yes, sir.

Mr. Fogarty. Have you suggested or requested of the Department and the Bureau of the Budget funds for such a program?

Dr. Terry. We have planned, we have almost demanded, sir. We are hopefully at the stage where we can expect to get some resolution.

Mr. Fogarty. Who has turned you down, the Secretary or the Bureau of the Budget?

Dr. Terry. The Secretary has been pushing with us very hard on this.

Mr. Fogarty. So it is the Bureau of the Budget?

Dr. Terry. Yes, sir. And they have promised to get specifically with us on this in the very near future.

Mr. Fogarty. Do you have an up-to-date plan of what ought to be done to modernize these hospitals?

Mr. Kelly. Some of them, sir.

We employed outside architects, through the General Services Administration, a number of years ago, you recall, and made feasibility studies. But because of the lack of resolution of this problem, we did not proceed any further with them until we got it resolved.

I wish I could report that we had a resolution of it. And although I cannot, I think I can report to you that we have made some very gratifying progress. And I really believe that the 1964 budget is going to reflect a resolution.

We had a meeting with the Deputy Director of the Budget Bureau and representatives of the Department of Health, Education, and Welfare, the Department of Commerce, and Department of Labor just recently, which gave rise to a request that we make—both we and the Department of Commerce, make certain additional studies, which should not take long to complete, at which time it is expected that we will get a resolution of the problem. And I think that we are closer to it than we have been at any time.

As you know, at the present time, the General Services Administration has the budget item for the repair and improvement of these hospitals as well as most of our—all of our other facilities. And I indicated to you the other day that I expect that, as soon as we do get resolution on this problem, that we will make a conversion of the budget, and I am hopeful that the 1964 budget will submit to this committee the funds necessary to take care of our physical plant and particularly to take care of the modernization or improvement that has been deferred in the public health service hospital system.

Mr. Fogarty. Do you expect any hospitals to be closed next year?

Dr. Miller. No, sir. We are not working on that basis.

HOSPITAL RELATIONSHIPS WITH MEDICAL SCHOOLS

Mr. Fogarty. How many of your hospitals have an affiliation with a medical school similar to the one in New Orleans with Tulane?

Dr. Miller. We have relationships with medical schools with respect to research, some of them in respect to teaching. And all of our hospitals are located in cities where medical colleges are located, except Norfolk and Savannah. And in all of the hospitals except Norfolk and Savannah, we have members of the faculties of the universities as consultants to our hospitals.

We have very close working relationships in Seattle and New Orleans and we are developing very good relationships at the Galveston Hospital with the University of Texas. And in other hopsitals——

Mr. Fogarty. How about Detroit and Chicago?

Dr. Miller. In Detroit and Chicago we have members of our consulting staff who are from universities, but we have no direct hospital interrelationships with the universities.

Mr. Fogarty. Why not? If you would get more funds for research, would that have any bearing on this?

Dr. Miller. With respect to the teaching of medical students, in those two cities, the universities have stated that their present facilities have been adequate to provide the clinical material necessary for teaching. We are hoping as we develop our research program that it will be extended to the Detroit and Chicago hospitals.

CARVILLE RESEARCH PROGRAM

Mr. **Fogarty**. How is the research program going down at Carville?

Dr. **Miller**. The research program in Carville is improving each year, sir, thanks to the funds that have been appropriated by this committee and the Congress.

With the last appropriation we were allowed a total of $110,000 specifically for Carville, which is being asked for in this budget also. They have developed their research program along certain lines of their own in cooperation with the Institutes of Health and with the Rockefeller Institute and other universities in the country.

During the past year, some interesting research was conducted in cooperation with the Rockefeller Institute and Guadalajara, Mexico.

I have talked with them recently, and they feel that they are progressing very well, sir.

HANSEN'S DISEASE

Mr. **Fogarty**. Is Hansen's disease contagious?

Dr. **Miller**. Hansen's disease would be listed as——

Mr. **Fogarty**. Mr. Marshall, will you continue while I go up to vote?

Mr. **Marshall**. Yes.

Dr. **Miller**. Shall I go ahead?

Mr. **Marshall**. You may finish the answer?

Dr. **Miller**. Yes, sir.

Hansen's disease would be more properly classified as an infectious disease, rather than a contagious disease, but the true means of communication are not known at this time.

It is mildly infectious through prolonged exposure.

INCREASE FOR IMPROVED MEDICAL CARE

Mr. **Marshall**. Leaving out the research program, how much increase are you asking just to improve medical care?

Dr. **Miller**. In the entire program?

Mr. **Marshall**. Yes.

Dr. **Miller**. Outside of our research, the only program increase we are asking for in the entire hospital and medical care budget amounts to $205,000. This also covers the two positions and $74,000 for the U.S. Coast Guard.

Dr. **Lowry**. Those are not for the P.H.S. hospitals.

HOSPITAL ADMISSION RATES

Mr. **Marshall**. I notice in the justifications that your admission rate is not going down any, is it?

Dr. **Miller**. No, sir. Our admission rate is increasing regularly as has been our outpatient visits.

Mr. **Marshall**. Do I understand correctly that the Lexington Hospital has a waiting list of drug addicts voluntarily seeking admission?

Dr. Miller. Yes, sir. There is almost constantly a sizable waiting list for patients to be admitted on a voluntary basis at the Lexington Hospital.

Mr. Marshall. That is kind of general, doctor. How many?

Dr. Miller. This has varied, Mr. Marshall, from 0 to 1,000 during the past year.

I could submit for the record an average amount for the entire year.

Mr. Marshall. I wish you would submit that along with your remarks.

Dr. Miller. Yes, sir.

(The requested information follows:)

The average waiting list at the Lexington Hospital for the current fiscal year to date is 206.

Mr. Marshall. Also, it appears that the capacity was exceeded at Lexington and Fort Worth by as much as 88 patients.

Dr. Miller. Yes, sir.

Mr. Marshall. How did you take care of that?

Dr. Miller. Well, extra patients are taken care of by adding extra beds in space that is not provided in the construction of the hospital. It is just a simple overcrowding, sir.

EXPANDED FACILITIES FOR DRUG ADDICTS

Mr. Marshall. What consideration have you given to expanding your facilities for drug addicts?

Dr. Miller. In our construction and remodeling appropriations?

Mr. Marshall. That is right.

Dr. Miller. For this year, we have been allowed a sum of $165,000, with which we are to plan for some improvements and additions at the Lexington hospital, and a sum in the amount of $105,000 for planning improvements at the Fort Worth hospital.

CARVILLE PATIENT RATE

Mr. Marshall. I was under the impression that the patient load at Carville would be going down, but your statistics on page 18 of your justifications indicate that it is going up slightly this year.

Dr. Miller. Yes, sir.

Mr. Marshall. Why is that?

Dr. Miller. I think this is due to the improved program at the Carville Hospital. There are better relationships with the health departments throughout the country. We are making physicians throughout the country aware of the existence of leprosy and the fine quality of medical care that is being provided.

And I might add, sir, that, as of yesterday, the patient census at the Carville hospital was 312, which is 12 additional to our average for last year.

Dr. Lowry. I think it should be clear that this does not necessarily reflect an increase in leprosy patients in the country but, rather, that they are being recognized by the physicians and diagnoses made, and they are being brought in for treatment.

LANGUAGE CHANGE FOR RESEARCH

Mr. MARSHALL. I notice that you have a change in language regarding your research. What are you planning on doing next year that you are not doing this year, and what makes this change necessary?

Dr. MILLER. This change was put into the language, Mr. Marshall, at the request of the General Counsel, who suggested that it be clarified.

Mr. MARSHALL. Mr. Kelly, would this language be subject to a point of order?

Mr. KELLY. It is not, sir.

We have had all of the language tested for point of order, and this one the General Counsel says is not subject to a point of order.

OPERATION OF HEALTH CLINICS IN FEDERAL AGENCIES

Mr. FOGARTY. With respect to the operation of health clinics that you operate at various Federal agencies, we were told last year that there are services you are legally authorized to furnish that, by regulation, you are not allowed to furnish. Would you refresh my memory on that point?

Dr. MILLER. Yes, sir.

The Presidential policy statement of 1950 did not mention the preventive health measures which are allowable under the legislation which makes the operation of the health units permissible. And at this time we are very hopeful that this will be clarified and resolved. The Secretary has been most interested in it.

The Chairman of the Civil Service Commission has been very interested in it, and they have discussed it with Mr. Bell of the Bureau of the Budget. We are most hopeful this will be resolved in the near future.

Mr. FOGARTY. You said the same thing a year ago, did you not?

Mr. KELLY. I might say, Mr. Chairman, since then we have drawn up a proposed revision in the Executive order that governs these services that are rendered by the various Government agencies. They held a meeting of the Assistant Secretaries and those in comparable positions in independent agencies, in the Budget Bureau, I would guess about 6 weeks ago, and reviewed this with those people, and a proposed change was enthusiastically received, and the Budget Bureau assured us that it would be given immediate attention.

SERVICES FOR LEGISLATIVE AND EXECUTIVE EMPLOYEES

Mr. FOGARTY. Is there any difference between the services available to legislative employees through the Capitol physicians' facilities and those available to executive branch employees through your facilities?

Mr. KELLY. Well, I do not know the answer, because I am not sure what services are rendered.

But I do know this: that I have had calls from a number of the staff members in the legislative branch inquiring as to whether or not they could participate in the annual physical examination that we give. This is really one of the points of controversy in this authorization as to what services can be rendered under the Executive order. We initiated a program in the Department which was sort of a pilot project to identify its cost and its value, in which we give a physical examination, and any unusual condition which is found in these physical examinations occasions the person to be referred to his physician.

Persons over 40 years of age are given these examinations, and they apparently are not available to the legislative staff members because they have inquired as to whether or not they could participate in our program. We do not have the facilities to expand it beyond the Department.

Mr. FOGARTY. You have the authority though?

Mr. KELLY. Well, I think it would be fair to say that there is no question of the authority under the law. There is a question as to whether or not we are exceeding the authority under the Presidential order. But it has been agreed that we should undertake it as a pilot study that might give rise to a change in this order, and we believe that it has proven to be a very worthwhile experiment.

Mr. FOGARTY. Well, why do you discriminate against legislative employees?

Mr. KELLY. Well, we do not provide services to legislative employees, but we would recommend to the Congress that they adopt it with respect to both the Members and their staff.

Mr. FOGARTY. You would?

Mr. KELLY. Yes, sir.

Mr. FOGARTY. You would suggest that this office across the hall be enlarged?

Mr. KELLY. Yes, sir.

Mr. FOGARTY. And that we have more doctors here to give these examinations?

Mr. KELLY. We think it is a very worthwhile thing to do.

Mr. FOGARTY. I think we should do something along that line.

HANSEN'S DISEASE

Is Hansen's disease contagious?

Dr. MILLER. No, sir; it is not what would be classified as contagious but as an infectious disease where, through prolonged contact, it might be acquired.

Mr. FOGARTY. What about India and some of these areas in India where they have many, many people infected with this disease?

Dr. MILLER. There are highly endemic areas in India and certain parts of Africa and certain other tropical areas.

Mr. FOGARTY. What is the cure rate, or is it curable?

Dr. MILLER. Yes, sir.

Mr. FOGARTY. It is, is it not?

Dr. MILLER. Yes, sir.

I think the hospital classifies them as arrested, and they are observed for many years before they would be considered cured. But when gotten early and treated with the present methods of treatment, the recovery rate, or the rate of arrest of the disease is quite high.

Mr. FOGARTY. But the stigma is attached to the person who has had it and goes out and tries to get a job. It is almost impossible.

Dr. MILLER. Yes, sir.

Mr. Fogarty. One case was brought to my attention by a person in Providence who had a friend down in Carville and she apparently was cured. She just could not get a job for a long time. Finally, she did and she was on a television program one night telling about this problem and that it was curable. She lost the job the next week because the people she was working with saw the program and just insisted that she be fired, because of their fear that it might be contagious and she might spread it. Now she has a job in a library and apparently everything is going along all right for her.

But that is a real problem, is it not?

Dr. Miller. Yes, sir; it is a real problem, and has been.

But I believe it is lessening very slowly over the years.

One of the principal purposes of our health education department at the Carville Hospital is to try to lessen the ill feeling of the general public.

As a matter of fact, two of the research projects that are going on at the Carville Hospital are along these lines.

Mr. Fogarty. I have not seen anything recently about this program. I have seen nothing on television or heard anything on the radio, or read anything in the newspapers of this education program you are speaking of.

Dr. Miller. The education program, as far as I know, has not been on television or radio. It is primarily a program of research at this moment. They are studying the attitudes of the professional people and the attitudes of the general public toward the acceptance of leprosy.

Mr. Fogarty. And we are making some headway in this area?

Dr. Miller. Yes, sir; I believe we are.

Mr. Fogarty. Now, if we get them early enough, the cure rate is fairly high; is that right?

Dr. Miller. Yes, sir.

CARVILLE HOSPITAL POPULATION

Mr. Fogarty. Is the population there remaining about the same?

Dr. Miller. The population during the past year has increased slightly.

Mr. Fogarty. What is it, around 400?

Dr. Miller. 300, sir.

Mr. Fogarty. 300. That is what it was 4 or 5 years ago.

Dr. Miller. Yes, sir; close to that; slightly under that.

Mr. Fogarty. These people do not die from Hansen's disease; do they?

Dr. Miller. Well, many spend their lives at the hospital, and most of them do not die of the disease itself but either of an intercurrent disease or some of the complications of leprosy.

CARVILLE HOSPITAL FACILITIES

Mr. Fogarty. How are these family quarters working out? Did we not build such quarters down there?

Dr. Miller. Yes, sir. There were two apartment houses built, one with small apartments for married couples.

Mr. Fogarty. That is what I mean.

Dr. Miller. And one for single persons.

Mr. Kelly. Ten-family units. Ten sets of patient family quarters.

Mr. Fogarty. Did you tear down those old wooden buildings that were being used?

Dr. Miller. Yes, sir.

Mr. Fogarty. What about the quarters for your professional personnel?

Dr. Miller. A moment ago, sir, I mentioned our construction program at the Lexington and Fort Worth hospitals——

Mr. Fogarty. I am talking about Carville.

Dr. Miller. I see.

Mr. Kelly. We constructed either 10 or 11 new sets of family quarters there.

Dr. Miller. Yes; the Carville quarters were completed.

Mr. Kelly. For the employees.

Mr. Fogarty. Are they sufficient to take care of the load?

Dr. Miller. At this time, sir, I believe the number of quarters for employees is sufficient.

Mr. Fogarty. So things are in pretty fair shape down there; is that right?

Do you have any real problems?

Dr. Miller. No, sir. I do not believe there are any real problems. There are always small problems in every institution.

Mr. Fogarty. I used to receive complaints prior to this building program and prior to the research program being initiated there, but I have not had any complaints since these buildings were built and the research program started.

Mr. Kelly. I think we ought to say, Mr. Chairman, that these buildings were really four major improvement projects. As I recall the figures, there were 10 sets for family quarters for patients and 11 sets for family quarters for employees that you appropriated the funds to construct.

And, in addition, funds were provided for conversion of two buildings down there, as Dr. Miller said, into the apartment-type facilities, rather than just private bedrooms.

We did, however, have a feasibility study made with respect to the entire physical plant which is being studied and examined now with respect to additional projects on a long-range basis, which involves such things as the replacement of the dining room, replacement of the powerplant, and certain other major projects.

So over a period of years, we would expect to have additional facility projects to bring to you.

Mr. Fogarty. Could you have that study incorporated in your statement next year?

Dr. Miller. Yes, sir.

Mr. Fogarty. The recommendations.

Dr. Miller. Yes, sir.

Dr. Terry. Mr. Chairman, I visited down there this fall and spent some time. And I think it is encouraging, the progress we have made in all respects—the construction, the research, and the whole morale and attitude of the entire institution. I think it is better than it has been for a long period of time.

Mr. Fogarty. This research, as I understand it, has helped stabilize your personnel problems to some extent, too; has it not?

Dr. Miller. Yes, sir: I think it has had a very great morale-raising effect.

Mr. Fogarty. Is there anything else you want to say?

Dr. Terry. No, sir.

MEDICAL CARE FOR COAST GUARD

Mr. Fogarty. All right, Dr. Fishburn, do you want to say anything about your problems in the Coast Guard?

Dr. Fishburn. I do not have a formal statement but I would like to make a few remarks.

Mr. Fogarty. Go ahead.

Dr. Fishburn. Just to acquaint the committee with the program, there are approximately 32,000 Coast Guardsmen on active duty full time, with between 15,000 and 16,000 ready reservists who are called to duty annually for a period of training.

The medical responsibility for caring for these people, as you know, is delegated to the Public Health Service. This is provided by the hospitals, outpatient clinics, or through the actual Coast Guard program at the various bases and on the larger ships, plus other armed services facilities.

At the present time we have 98 officers on active duty at 23 land stations and on 7 ships.

In addition to these full-time staffed facilities, there are approximately 500 small units—lighthouses, loran stations, and so forth, where medical coverage is provided by contract doctors or facilities.

1963 BUDGET ESTIMATE

The 1963 budget estimate calls for an increase of $75,000 to provide two psychiatrists, one for each of the receiving centers and for a slight increase in contract services.

Mr. Fogarty. Are you satisfied with the budget increase?

Dr. Fishburn. Well, sir, it represents an improvement over last year's.

I have been on the job a relatively short time, and have been looking around. It will offer an operation better than 1962.

Mr. Fogarty. Of course, that could mean most anything.

If it was very bad in 1962, $75,000 is not going to improve it very much.

Dr. Fishburn. No, sir.

The big problem with this——

Mr. Fogarty. What do you need that you are not going to get in 1963? What have you seen so far that you think we ought to be doing that we are not?

Dr. Fishburn. I think, economically, that the budget presented to the Department would do an adequate job for this coming year.

Mr. Fogarty. All right. Do you have anything else that you want to say?

Dr. Miller. No, sir.

Mr. Fogarty. Thank you very much.

Dr. Miller. Thank you, Mr. Chairman.

WEDNESDAY, FEBRUARY 7, 1962.

FOREIGN QUARANTINE ACTIVITIES

WITNESSES

DR. JAMES G. TELFER, CHIEF, DIVISION OF FOREIGN QUARANTINE
RALPH E. RIGGS, DIVISION BUDGET OFFICER
DR. EDWARD O'ROURKE, EPIDEMIOLOGIST
DR. JAMES V. LOWRY, CHIEF, BUREAU OF MEDICAL SERVICES
DR. LUTHER L. TERRY, SURGEON GENERAL
JAMES F. KELLY, DEPARTMENT BUDGET OFFICER

Object classification

[In thousands of dollars]

	1961 actual	1962 estimate	1963 estimate
11 Personnel compensation:			
Permanent positions	3,545	3,971	4,232
Positions other than permanent	42	41	46
Other personnel compensation	585	578	584
Total personnel compensation	4,172	4,590	4,862
12 Personnel benefits	342	378	392
21 Travel and transportation of persons	167	170	195
22 Transportation of things	57	65	108
23 Rent, communications, and utilities	86	87	87
24 Printing and reproduction	29	29	29
25 Other services	208	940	342
26 Supplies and materials	116	117	120
31 Equipment	54	46	115
Subtotal	5,231	6,422	6,250
Deduct quarters and subsistence charges	20	20	20
Total obligations	5,211	6,402	6,230

Personnel summary

	1961 actual	1962 estimate	1963 estimate
Total number of permanent positions	626	656	688
Full-time equivalent of other positions	8	7	8
Average number of all employees	564	611	649
Number of employees at end of year	587	623	655
Average GS grade	7.6	8.2	8.2
Average GS salary	$6,426	$6,606	$6,625
Average salary of ungraded positions	$5,055	$5,318	$4,781

Program and financing

[In thousands of dollars]

	1961 actual	1962 estimate	1963 estimate
Program by activities:			
Quarantine and visa medical examination activities (total program costs)[1]	5,224	6,402	6,230
Change in selected resources[2]	−13		
Total obligations	5,211	6,402	6,230
Financing:			
Comparative transfers to other accounts	161		
Advances and reimbursements from non-Federal sources (42 U.S.C. 267)	−335	−338	−1,938
Unobligated balance lapsing	73	18	
New obligational authority	5,110	6,082	4,292
New obligational authority:			
Appropriation	5,110	6,084	4,292
Transferred to "Operating expenses, Public Buildings Service," General Services Administration (75 Stat. 353)		−2	
Appropriation (adjusted)	5,110	6,082	4,292

[1] Includes capital outlay as follows: 1961, $57 thousand; 1962, $780 thousand; 1963, $134 thousand.

[2] Selected resources as of June 30 are as follows:

	1960	1961	1962	1963
Stores	50	38	38	38
Unpaid undelivered orders	80	79	79	79
Total selected resources	130	117	117	117

Mr. Fogarty. Dr. Telfer, are you going to justify the budget for the foreign quarantine activities?

Dr. Telfer. I will try to do so, sir.

Mr. Fogarty. You have not been before this committee before have you?

Dr. Telfer. No, sir.

BIOGRAPHICAL SKETCH OF DR. TELFER

Mr. Fogarty. Will you, for the committee, give us your background, what you have been doing, and where you have been, prior to coming to this job?

Dr. Telfer. Yes, sir.

Mr. Chairman and members of the committee, I was born in San Jose, Calif., and attended the schools of that State. My premedical studies were at the University of California at Los Angeles. I received my degree in medicine from the Washington University School of Medicine, in St. Louis.

After internship at Gorgas Hospital in the Panama Canal Zone and an internship in internal medicine at the University of California Hospital in San Francisco, almost all of my professional career has been in the Public Health Service.

This has been largely devoted to the clinical care of patients. I am certified by the American Board of Internal Medicine and have particular interests in chest diseases and tropical diseases. In these areas, I have held academic appointments as instructor at Northwestern University, assistant professor at the University of Washington, and associate professor at the University of Texas.

My assignments in preventive medicine have been at intervals over the years. One of the first assignments was as quarantine officer at Manila, Philippines, and port health observer at Hong Kong. At that time I had an opportunity to travel in Burma and China and saw quarantinable diseases, such as plague, smallpox, and cholera. During one of the epidemics of cholera, I was in charge of a temporary cholera hospital for the Colonial Medical Service in Hong Kong.

The dangers for a community receiving additional population on an emergency basis without any quarantine protection were brought forcibly to my attention in 1942 when I was in charge of the medical service at the U.S. Coast Guard training station, Manhattan Beach. We had large numbers of men coming in before we were quite ready to care for them. They were intermingled with the existing population of recruits and we had epidemics of meningitis, mumps, measles, German measles, rheumatic fever, chickenpox, and virus pneumonias, all present rather concurrently.

During the American administration of the Government of Manila in World War II, I was in charge of the division of communicable diseases of the city health department.

In 1947, I served with the World Health Organization as quarantine expert on loan to the Chinese Government in Nanking.

In 1957, after a short period with the Seattle-King County Health Department, I attended the University of California at Berkeley and received, in 1958, the degree of master in public health.

Since then, I have been with the Division of Foreign Quarantine as tuberculosis consultant, European area, Assistant Chief, and since August 1961, Chief of this Division.

Mr. FOGARTY. Well, you are not any stranger to the Quarantine Service then?

Dr. TELFER. No, sir.

Mr. FOGARTY. You must be really disappointed with this budget, then. With all that background, I am sure you are not going to be happy with this budget that you have before us.

GENERAL STATEMENT

Go ahead, Doctor. Do you have a statement?

Dr. TELFER. Thank you, sir. I have a summary statement.

Mr. FOGARTY. We shall place your prepared statement in the record and you may proceed with the summary.

(The statement follows:)

STATEMENT BY CHIEF, DIVISION OF FOREIGN QUARANTINE ON "FOREIGN QUARANTINE ACTIVITIES"

Mr. Chairman and members of the committee, the Division of Foreign Quarantine performs one of the major responsibilities of the Public Health Service—protection of the United States against the importation of diseases. This is accomplished by (1) inspections at ports of entry and the application of measures to prevent the introduction into this country of serious communicable diseases and their vectors from abroad and (2) the medical examination of applicants for visas at designated consulates abroad and medical inspections at ports of entry in this country to prevent the entrance of any alien with a disease or medical condition which is excludable by law or which adds to the problem of disease control or creates a burden of institutional or economic support of the alien.

WORLD PREVALENCE OF QUARANTINABLE DISEASES

For the past 14 years the United States has been free of quarantinable diseases introduced from abroad. Only by constant and increasing vigilance has this been possible in the face of the potential danger evidenced by the continued incidents of importation of smallpox into the countries of Europe. In Madrid, Spain, there were 16 cases with 3 deaths, including death of the imported case, a young girl who had returned from Bombay. Twenty-eight persons who had been on the plane with this girl from Bombay to Rome entered the United States. In this country the Division of Foreign Quarantine was able to confirm that each of these contacts had received a recent vaccination and to arrange surveillance until the danger was over. In Anasbach, Germany, an infected man returning from Calcutta, worked in a photography shop for a week and then became ill. A diagnosis of chickenpox was made at the time of hospitalization. Subsequently, the diagnosis of smallpox was made. There were three secondary cases—his mother, his father, and the family physician. The mother died of the disease. In Moscow, a single case of smallpox was imported into the country. The diagnosis was made upon arrival and control measures were applied immediately. Fifty-two passengers were isolated for 2 weeks; no secondary cases occurred.

During the past year, this disease continued to be endemic in countries of Africa, Asia, and a few countries of South America. The presence of smallpox in these countries with travel to and through them stresses the need for a careful check on health and current immunity status of persons arriving at U.S. ports of entry.

Cholera spread westward from the endemic areas of India and East Pakistan to Afghanistan and West Pakistan in the summer of 1960 and during 1961 it spread eastward in Hong Kong, Macao, and Sarawak. Subsequently, a cholera-like disease has been reported in the Philippines where it is widespread with an estimated 5,000 cases occurring with a 15-percent mortality.

Plague was reported in 1961 in an international port for the first time in 2 years. In Rangoon, Burma, two human cases and two infected rats were reported. Plague epidemics in humans continued to occur during the year in areas where infection was present in rodents; the countries included Bolivia, Brazil, Ecuador, Peru, the Congo, and the Union of South Africa. Vigilance and an active deratization program at all ports of entry are essential for the continued elimination of this disease in international traffic. In the United States two areas were declared free of plague infection in 1961—these were the Hamakua District of Hawaii, where infected fleas had been found on wild rodents; and Chaves County, N. Mex., where plague had been contracted the previous year by two hunters who had been in contact with a dead rabbit. Also there were two plague fatalities in New Mexico as a result of infection from wild rodents in isolated mountain areas.

Yellow fever which had been quiescent for a few years in former endemic areas became explosive in a southwest province of Ethiopia with more than 3,000 deaths reported in April 1961.

Typhus (louse borne) was reported in 1961 in five international ports: Quito, Ecuador; Teheran, Iran; Cairo, Egypt; and Asmara and Addis Ababa, Ethiopia. Outbreaks also occurred in the interior of these countries, and in Yugoslavia, Mexico, Korea, and Colombia.

Relapsing fever (louse borne) continued at a low endemic level in Ethiopia, and for the first time in several years was reported in Port Sudan.

THE QUARANTINE FUNCTION

The quarantine function (the inspection and the application of preventive measures at U.S. ports of entry) is performed at over 300 continental and insular locations in the United States and its possessions.

The volume of international traffic is expected to continue increasing; established transportation facilities are being expanded and improved and new facilities are being added. As a consequence, the Division of Foreign Quarantine work volume will continue to increase. In 1961, about 5.6 million persons—both aliens and returning citizens—subject to quaratine inspection arrived in the United States. It is estimated that this figure will approximate 6 million persons in 1963. This increase will be largely accounted for by arriving air passengers. No major change is foreseen in passenger traffic by vessel or in the number of persons entering the United States by land from Mexico.

As the airlines continue to convert to jet aircraft with larger passenger capacity, greater speed, and higher frequency of arrival, the quarantine workload at major airports handling international travel will continue to increase.

In addition, as the result of increased speed in transportation, the danger of introduction of the quarantinable diseases is greatly increased. Disease endemic in any part of the world can now be brought to our shores in hours. Consequently, new techniques, improved communications, and constant vigilance are required to insure the continued protection of this country. For example, five flights arriving from France were included in a recent survey conducted at Idlewild Airport. Included among the 553 passengers were those who had within the preceding 14 days visited one or more of the following countries: the Congo, Egypt, Libya, Morocco, Iran, Israel, Jordan, Lebanon, Syria, Turkey, Hong Kong, India, Japan, and Pakistan, as well as in 23 European countries. One or more of the six quarantinable diseases are endemic in the Congo, Egypt, Iran, India, and Pakistan. Thus it can be seen that even flights arriving from Western Europe have real and direct potential for introducing these diseases if our quarantine requirements are not strictly enforced.

In 1961, smallpox vaccinations were given to approximately 565,000 persons subject to quarantine inspection who did not present valid vaccination certificates on arrival in the United States. It was necessary to detain for medical observation 11 persons arriving in the U.S. ports of entry because of possible recent exposure to a quarantinable disease. Some 92,000 incoming travelers were allowed to continue to their destinations in the United States, but were required to be under temporary surveillance. This represented 1.6 percent of all persons who were subject to quarantine inspections. The great majority of travelers to the United States comply with our immunization requirements. This is a clear indication of the effectiveness of enforcing health requirements.

Progress has been made in eliminating or greatly reducing the yellow fever mosquito, *Aedes aegypti,* in nearly 150 international traffic areas. However, until this mosquito is eradicated from the Southern States, it is important that we maintain strict vigilance in areas contiguous to airports and docks to prevent reintroduction of yellow fever.

In addition to the responsibilities for control of the quarantinable diseases required by international agreement, the Division program includes prevention of the introduction into the United States of other dangerous contagious diseases. During the year 1961 there was a recrudescence of meningitis in Nigeria; it spread to Niger, Chad, and the Sudan. Several thousand cases were reported.

Influenza epidemics occurred during this period in England, Wales, Ireland, Japan, American Samoa, and the Philippines. The A–2 virus was isolated in England and Wales, and the B virus in Japan.

Among those travelers arriving at U.S. ports of entry in 1961 were individuals who were found to have one or more of the following communicable diseases: Chickenpox, encephalitis, filariasis, gonorrhea, impetigo, keratoconjunctivitis, leprosy, measles, mumps, pinta, pneumonia, ringworm, scabies, schistosomiasis, syphilis, trachoma, tuberculosis, and typhoid fever.

There has been continuing progress in the elimination of rats from vessels. Progress is being made on improving food handling and water supplies on international vessels and planes. The World Health Organization is proceeding with the plan initiated by the Division of Foreign Quarantine to establish international standards of sanitary construction and operation of vessels.

In 1962, 30 positions are being added to the inspection staff to meet the mounting requirements for inspectional services resulting from increases in international traffic and the higher passenger volume of jet aircraft.

THE ALIEN EXAMINATION PROGRAM

The Public Health Service Act specifies that the Surgeon General of the Public Health Service shall provide for making, at places within the United States or in other countries, such physical and mental examination of aliens as are required by the immigration law to prevent mentally and physically defective aliens from entering the United States. In order to avoid the hardship involved in turning away immigrants at ports of entry of the United States, visa applicants are medically examined in the country and at the time application is made. In addition, certain nonimmigrant aliens coming to the United States are required to be examined.

PUBLIC HEALTH SERVICE EXAMINATIONS AT CONSULATES ABROAD

Examining units are established at most of the large visa issuing posts in Europe which process the majority of immigrants to the United States. These units are staffed either by Public Health Service officers or local physicians employed and supervised by the Public Health Service and work closely with the visa section of the consular post. Division of Foreign Quarantine medical officers examined more than 185,000 visa applicants at 22 of the principal American consular offices in Europe, Canada, Mexico, Cuba, and Hong Kong during 1961. In some locations in Canada and Mexico these examinations are performed by local physicians under contract with the Division. During the year, over 53,300 notifications of significant physical or mental conditions were made to consular officials. Of this number 1,850 visa applicants were found to have conditions which by law are excludable from the United States. An additional 17,600 applicants were found to have conditions which might have affected their ability to earn a living in the United States, and 33,900 were found to have diseases or physical defects of less serious nature.

At American consular offices where Public Health Service personnel are not available, visa applicants are examined by local physicians selected by the Department of State. In 1961, 130,000 applicants were examined by these physicians. At the request of the Department of State, Public Health Service medical officers provide supervision of these physicians in some localities. The Division is requesting funds in the 1963 budget for a supervisory office to serve the Caribbean and Central American areas.

PUBLIC HEALTH SERVICE MEDICAL INSPECTIONS AT PORTS OF ENTRY

All aliens, including immigrants, are inspected at U.S. ports of entry by Division of Foreign Quarantine personnel in accordance with provisions of the Immigration and Nationality Act. The number of the inspections increased from 2,945,000 in 1960 to 3,132,000 in 1961.

Of the aliens medically inspected at U.S. ports of entry in 1961, 44,800 (excluding 600 admitted under excludible disease waiver) were found to have conditions reportable to the Immigration and Naturalization Service. Of this number 19,500 were found to have diseases or defects which affected their ability to be economically self-sustaining in the United States and 23,800 had conditions of lesser importance. More than 1,500 of this group were first found to be excludible from the United States at the port of entry. These were for the most part Mexican border crossers or alien seamen, since excludible immigrants are discovered generally at the time of the application for a visa and before departure.

REQUIREMENTS FOR 1963

The estimated requirements for 1963 amount to $6,230,000, of which $4,292,000 is requested to be appropriated and $1,938,000 is to be obtained from fees. Part of these fees, $338,000, are from carriers for special overtime boarding services, and are credited to this account as provided by section 364 of the Public Health Service Act. The remaining $1,600,000 represents fees collected by the State Department for visa medical examination; the budget proposes that, beginning in 1963, these fees be credited to this appropriation account rather than to a Treasury receipt account as is now being done. Language authorizing this change in procedure is proposed in the budget.

After eliminating nonrecurring costs, the 1963 estimate provides an increase of $570,000 over 1962. Built-in requirements account for $226,000 of this increase and program increases $344,000.

Included in the built-in increases is $158,400 of costs formerly carried by the State Department for 12 clerical positions and administrative support costs for the visa medical examination function outside the United States.

The program increase of $344,000 will provide for—

1. Two positions and costs for preclearance inspections at Bermuda and Nassau. This will facilitate international traffic by reducing delays at points of arrival.
2. Eighteen positions and funds for the visa medical examination program. This increase will permit us to improve the quality of the examinations performed and allow increased supervision of State Department panel physicians.

Dr. TELFER. The Division of Foreign Quarantine carries out one of the major responsibilities of the Public Health Service—the protection of the United States against the importation of disease. This is accomplished by the medical examination at consulates abroad of applicants for visas and by medical inspections at ports of entry into this country of persons and things.

CHOLERA

During the past year no quarantinable disease was introduced into the United States. The quarantinable diseases are smallpox, plague, yellow fever, cholera, typhus, and relapsing fever. These diseases are present in endemic and epidemic form in large areas of the world. During the past year smallpox and cholera were transmitted from one country to another by international travelers. Cholera was brought to Hong Kong and spread east. It spread into Sarawak and Macao. Shortly after the epidemic of cholera in Hong Kong during this past year, a great epidemic of a disease which has since been called the paracholera or cholera-like, developed in the Philippine Islands, first in Manila about September. In the first stages of this disease, we were advised that the disease was like cholera with uncertainty as to whether it actually was cholera or not.

We immediately intensified all our protective measures to avoid introduction of this disease into this country.

This disease has since been called paracholera but the protective measures which we use against cholera are also protective against this particular disease. It has spread all through the Philippine Islands.

The figures on just how much of it there is are variable from week to week; I mean up one time, down another. But we have heard that there are possibly as many as 12,000 cases and a mortality of as high as 15 percent.

SPREAD OF SMALLPOX

Then smallpox was transmitted to Europe—Russia, Spain, and Germany, early during the year, and now we have more troubles with smallpox.

First, we received word through one of our sources that there was quite an extensive epidemic in Karachi, Pakistan. This was early in December. We alerted all our field stations to intensify all protective measures against smallpox. It was very fortunate that we had early warning because this year has been quite a bad year for passage of the disease from one country to another.

It has now been introduced into Europe seven times. We have a chart which shows five introductions into Britain, various parts of England and Wales, from Pakistan. And then——

Mr. FOGARTY. Did all this happen since Dr. O'Rourke left London?

Dr. TELFER. Yes, sir. We often wish that Dr. O'Rourke were right there on the spot for us—properly vaccinated, of course.

I hoped, sir, you would refer to Dr. O'Rourke. I would like to have him help explain some of our applications of epidemiology.

Mr. FOGARTY. Go right ahead.

Dr. TELFER. Yes, sir.

Now, during this same period, December and January, the disease was introduced one time from Africa into Germany and another time, more recently, from India into Germany.

These cases spread out and we have had secondary cases.

Mr. FOGARTY. Did all these cases in England come from Karachi?

Dr. TELFER. Yes, sir, they all came from Karachi. This second chart shows——

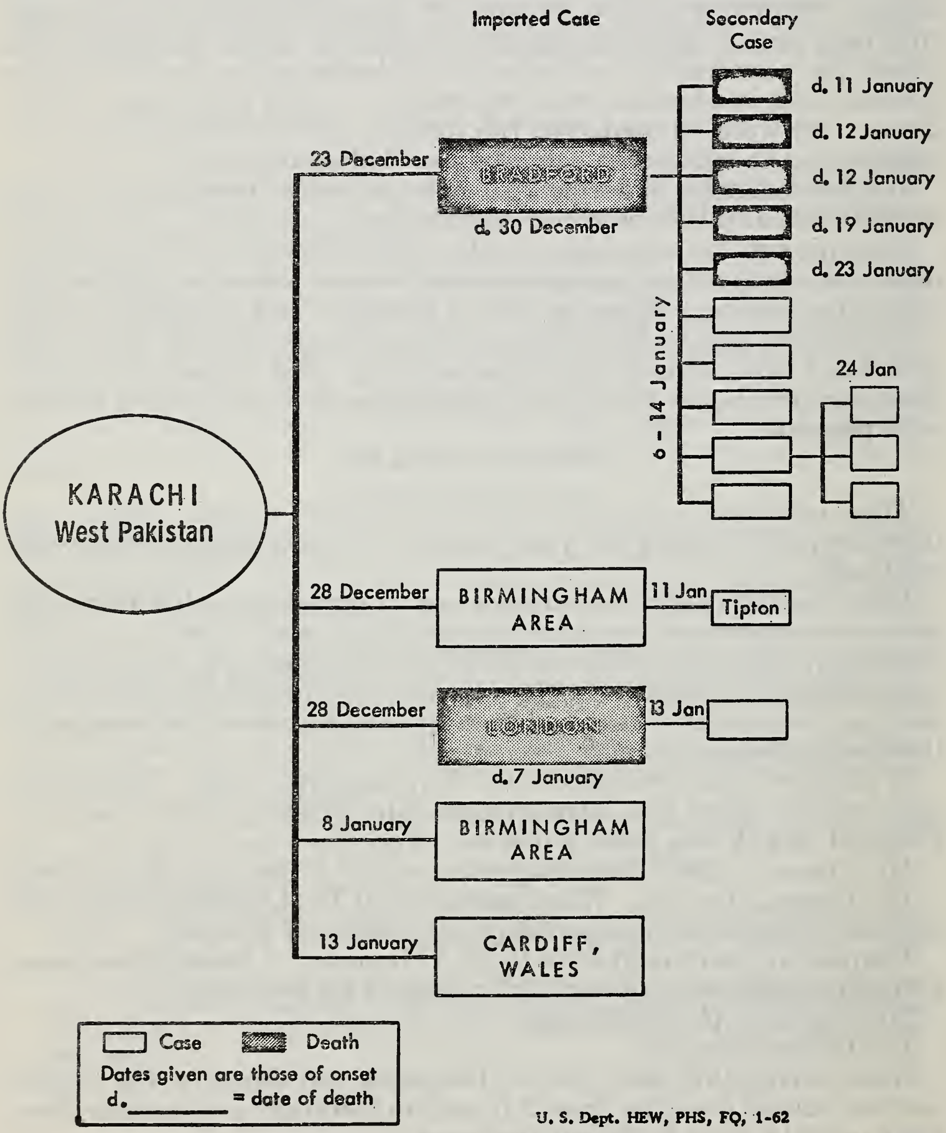
Mr. FOGARTY. England is getting to be pretty close to home now in this jet age, is it not?

Dr. TELFER. Yes, it is just a few hours.

This is what happened in Britain. This child who died was not recognized as having smallpox but was autopsied by this gentleman right here, in this black square, and it was not recognized that this child had smallpox until several of these others came down with it.

(The exhibit being referred to follows:)

SMALLPOX - GREAT BRITAIN



U. S. Dept. HEW, PHS, FQ, 1-62

Mr. Fogarty. What are the black squares?

Dr. Terry. Deaths.

Mr. Fogarty. Oh, the doctor that performed the autopsy died?

Dr. Telfer. Yes, sir. Very unfortunately; this case was completely atypical. It did not look like smallpox, and it was not recognized.

Mr. Fogarty. I see.

Dr. Telfer. He got smallpox as did these other people.

And then other people—three—apparently contracted smallpox from the first group. These are the ones that died.

Mr. Fogarty. It really spreads, then.

Dr. Telfer. It really spreads if people are not protected with adequate vaccination.

In this case, this was a health officer who was unsuspecting and apparently not protected and he came down with smallpox. One of these London cases died, a secondary case. There are now two more cases reported in England and it is not certain just where they contracted their infection. It is not known.

In the meantime, in Germany, this man that went up to Germany from Liberia had been vaccinated, not too long before his stay in Liberia. He developed a very mild attack of smallpox and he went home and the disease was not recognized until he had given it to his wife and child. They all, fortunately, were very mild cases of smallpox and they recovered. But in the meantime, the nurse who took care of them was vaccinated when she was placed with them, but the vaccination was unsuccessful. She came down with smallpox and died.

Mr. Fogarty. That is a peculiar thing, is it not, to have a nurse vaccinated and not knowing whether or not it has taken?

That should not happen, should it?

Dr. Telfer. It should not happen.

Dr. Terry. She was not vaccinated until, presumably, she was in the incubation stage of the disease. In other words, she had already been exposed and presumably was in the incubation stage when she had the vaccination.

DESCRIPTION OF SMALLPOX

Mr. Fogarty. What is smallpox, Doctor?

Dr. Telfer. Smallpox is a rather highly communicable disease caused by a virus—a virus that is somewhat similar to the virus that causes chickenpox and very similar to the virus that is used for vaccinating people.

Mr. Fogarty. How does it affect people?

Dr. Telfer. Smallpox. It is one of the most horrible diseases that a person can develop. In the classical form, there is a wait of about 10 days before anything can be seen to happen. Then for about 3 or 4 days the person is quite sick with what would look pretty much like a bad attack of flu—he has fever and backache and feels miserable. During that stage, he may have some little skin eruption which may be very deceiving. It makes the disease look like some other condition.

And then after that, 3 or 4 days, they come down in a classical case, with the true eruption of smallpox, which goes through a course of up to about 9 days. There are first little red marks, that thickens and form into blisters and then they swell up and become full of pus. If the person recovers, the lesions break down and scab over and heal, leaving scars. The time during the eruption is an extremely uncomfortable one. With the pus formation; they again develop fever. The sores may occur in the mouth and nose, so that it is very difficult to breathe and swallow. Those recovering will certainly be left with scars which may be disfiguring and may have such complications as blindness, deafness, and various neurological disorders. A very bad disease.

There are also very mild forms of smallpox which occur more characteristically in certain areas, such as down in South America. And it may be very mild. It is very difficult to recognize as smallpox, and so it is an extremely dangerous problem for quarantine people.

Mr. FOGARTY. All right; go ahead.

EFFECT OF INTERNATIONAL AIR TRAVEL ON DISEASE CONTROL

Dr. TELFER. Speed of international air travel continues to increase. It is estimated that the volume of traffic will continue to rise. In fiscal year 1963 it is estimated that 6 million persons, an increase of some 400,000 over 1961, including both aliens and returning citizens, will be inspected for quarantine on arrival at ports of entry into this country. This increase will be largely accounted for by arriving air passengers and a significant portion will be from areas where quarantinable diseases exist. For example, five flights arriving from France were included in a recent survey conducted at Idlewild Airport. Included among the 553 passengers were those who had within the preceding 14 days visited 1 or more of the following countries: the Congo, Egypt, Morocco, Iran, Libya, Israel, Jordan, Lebanon, Syria, Turkey, Hong Kong, India, Japan, and Pakistan, as well as in 23 European countries. One or more of the six quarantinable diseases are endemic in the Congo, Egypt, Iran, India, and Pakistan. Thus it can be seen that even flights arriving from Western Europe have real and direct potential for introducing diseases if our quarantine requirements are not strictly enforced. Last year 98 percent of the persons entering this country complied with our immunization requirements which points up the effectiveness of enforcing health requirements. The majority of the remaining 2 percent were placed under surveillance and a few were necessarily isolated.

YELLOW FEVER CONTROL

Continued progress has been made in reducing the threat of yellow fever to the United States by controlling *Aedes aegypti*, the yellow fever mosquito, in more than 100 international traffic areas. It is important that we maintain strict vigilance in areas contiguous to airports and docks to prevent reintroduction of yellow fever.

SANITATION ON INTERNATIONAL VESSELS

There has been continuing progress in the elimination of rats from vessels. Progress is being made on improving food handling and water supplies on international vessels and planes. The World

Health Organization is proceeding with the plan initiated by the Division of Foreign Quarantine to establish international standards of sanitary construction and operation of vessels.

VISA MEDICAL EXAMINATION PROGRAM

In the visa medical examination program of the Division of Foreign Quarantine, operated at some 22 consulates abroad, 185,000 aliens were medically examined by PHS physicians, and PHS employed and supervised local physicians. Fifty-three thousand persons examined were found to have conditions requiring notification to the consulates. One thousand eight hundred and fifty had diseases such as mental deficiency, epilepsy, leprosy, tuberculosis, and severe emotional disorders which are excludable under the provisions of the Immigration and Nationality Act. Eighteen thousand were found to have medical conditions which might affect the ability of the applicant to earn a living and 33,000 were found to have other minor conditions. At consulates abroad where there are no Division of Foreign Quarantine staff, some 130,000 aliens were medically examined by foreign physicians selected by the Department of State. Division of Foreign Quarantine physicians provide supervision of those foreign physicians in certain localities.

A total of 3,100,000 aliens were medically inspected last year at ports of entry into the United States in accordance with the provisions of the Immigration and Nationality Act. This includes those mentioned above who were previously examined abroad for visa issuance purposes as well as visitors, foreign seamen, students, and some others.

BUDGET REQUIREMENT, 1963

The estimated requirements for 1963 amount to $6,230,000, of which $4,292,000 is requested to be appropriated and $1,938,000 is to be obtained from fees. Part of these fees, $338,000, are from carriers for special overtime boarding services, and are credited to this account as provided by section 364 of the Public Health Service Act. The remaining $1,600,000 represents fees collected by the State Department for visa medical examinations. The budget proposes that, beginning in 1963, these fees be credited to this appropriation account rather than to a Treasury receipt account as is now being done. Language authorizing this change in procedure is proposed in the budget.

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Included in the "built-in" increases is $158,400 of costs formerly carried by the State Department for 12 clerical positions and administrative support costs for the visa medical examination function outside the United States.

PROGRAM INCREASE

The program increase of $344,000 will provide—

1. Two positions and costs for preclearance inspections at Bermuda and Nassau. This will facilitate international traffic by reducing delays at points of travel.

2. Eighteen positions and funds for the visa medical examination program. This increase will permit us to improve the quality of the program and allow increased supervision of State Department panel physicians.

Mr. FOGARTY. Thank you, Doctor.

ERADICATION OF YELLOW FEVER VECTOR

I notice in your statement, page 2, you talk about the importance of eradicating this mosquito that carries yellow fever. But when we had Dr. Smith from the CDC here the other day, he told us that part of the funds for this purpose were put in reserve. As a consequence, they are not able to continue this program at a proper level. And at the same time we were told that some of the countries in South and Central America have started programs to eradicate this mosquito. We are running in second place to Latin America.

Do you think this can be done?

Dr. TELFER. That the mosquito can be eradicated, sir?

Mr. FOGARTY. Do you think it is important to continue on with this?

Dr. TELFER. The Division of Foreign Quarantine thinks it is important and we feel that it is important to the country generally.

Mr. FOGARTY. Do you feel that it would be in the national interest to carry out such a program?

Dr. TELFER. This would be particularly in the national interest because the other neighboring countries to the south of us have done a great deal in this respect and we are behind in some of this.

Mr. FOGARTY. Well, you know, when the President advised all the Cabinet officers about these cuts on October 26, he said:

> I much prefer that obligational authority remain uncommitted where there is any doubt that expenditures will yield substantial returns to the national interest.

So I am glad to have your comment.

I was sure that it would be to the national interest to adopt such a program and get rid of this problem.

Dr. TELFER. Yes, sir.

Mr. FOGARTY. And you agree it would be in the national interest to go ahead?

Dr. TELFER. I certainly agree, sir.

CHANGE IN APPROPRIATION LANGUAGE

Mr. FOGARTY. Now, you mentioned also a change in the language this year.

Dr. TELFER. Yes, sir.

Mr. FOGARTY. It reads:

> Together with all fees collected during the current fiscal year for medical examinations of aliens.

Dr. TELFER. Yes, sir.

Mr. FOGARTY. I am pretty certain that would be subject to a point of order.

Mr. KELLY. It is subject to a point of order, Mr. Chairman.

Mr. FOGARTY. Maybe it is just as well that it is.

Do you think this is good business to depend on fees for the staffing of your service? It does not sound right to me.

Mr. Kelly. Could I just give you a little bit of background on it, Mr. Chairman?

Mr. Fogarty. Yes.

Mr. Kelly. For many years, the Public Health Service has had a few of the international areas covered with its doctors who do medical examination of aliens prior to their departure to this country. These examinations have been provided at the expense of the taxpayers of the United States.

If, however, the alien who desires to come to this country is coming from a part of the world where we do not have a physician, he goes to what the doctor described as a panel physician set up by the State Department, and in this instance he has to pay for this examination.

We have been discussing with the Justice Department, the State Department and the Bureau of the Budget, and within our own Department, for sometime, the inequity of this and the feeling that, whether or not the alien is examined by a panel physician or our own physician, he should pay for it. If he did, without an increase in the appropriations, and if the workload in any given area was large enough to support our having our own staff there, we could perform the examinations. This is considered to be preferable to the use of panel physicians where it is economically justified.

As a result of these discussions, it was concluded that the State Department had the legal authority to put fees into effect. They have established a fee of $10 which they are collecting from the alien to cover the medical examination.

This is estimated to produce $1,600,000.

The decision was made to credit these receipts to this appropriation.

I might say to you that whether they are made a deposit to this appropriation or put in miscellaneous receipts of the Treasury, it has the same net effect on the U.S. Government's finances. By depositing them to this account, I think it was considered that it would bring to your attention the relationship of this income to the expense. If they were placed in miscellaneous receipts, it would not so readily come to your attention.

But, of course, we could bring it to your attention in the justifications that we submit to you.

Mr. Fogarty. Well, I do not see any inequity. It is going to cost just the same amount of money either way. After your explanation of this change, you have not convinced me at all. I still think that it would be better for the Service to appropriate the funds outright and collect the fees and put them in miscellaneous receipts.

Mr. Kelly. Yes, I think a good argument——

Mr. Fogarty. That way we know just what we are appropriating and how many people we are providing for, and the Service is in a better position to make firm plans for their program.

Mr. Kelly. I am not disagreeing with you, Mr. Chairman. The point I wanted to make is that the fee itself is a new thing, and I think a very worthwhile thing. I think it does establish that the person who obtains the benefits pays for them. It has been shown that they are capable of paying for them. It does away with the inequity that has previously existed.

Mr. FOGARTY. I agree with the fee proposition. I think charging for this service is right and equitable.

BUDGET FOR 1963

How will it affect your budget if we delete this language?

Dr. TELFER. Sir, the sum of $1,600,000 has been taken from our appropriation for these fees.

Mr. FOGARTY. So you would need an additional $1,600,000?

Dr. TELFER. Exactly, sir.

Mr. FOGARTY. Your appropriation for 1962 is $6,084,000, and the request for 1963 is $4,292,000, but the fees under that language in the bill should be added for comparable purposes, the $1,600,000.

Dr. TELFER. Yes, sir.

Mr. FOGARTY. Then you have a nonrecurring construction expense in 1962 amounting to $734,000. These and other minor adjustments will give you an increase of about $500,000 and 32 positions, more than was authorized for your basic program for 1962.

Mr. RIGGS. Yes, sir.

RESERVE OF 1962 APPROPRIATIONS

Mr. FOGARTY. Of course, if we add the $1,600,000 to your budget, you cannot guarantee it is going to be available for you to use, can you? Some of your superiors might decide differently as they have in 1962; is that right?

Dr. TELFER. Yes, sir.

Mr. FOGARTY. They took $18,000 away from you this year.

Mr. RIGGS. Yes, sir; the administrative reserve is a net of $18,000.

Mr. FOGARTY. We increased your budget $200,000 for the staff at international airports and the Senate increased the House bill $734,000 for pier construction at Staten Island.

How was the reserve applied? Did the reserve affect this?

Mr. RIGGS. No, sir.

Mr. FOGARTY. It did not?

Dr. LOWRY. The reserve did not affect the pier. It did affect the 38 new positions authorized in the 1962 Appropriation Act. Is that right, Mr. Kelly?

Mr. KELLY. Yes.

Mr. FOGARTY. It looks to me as though whoever made these decisions to put funds in reserve is favoring the Senate and discriminating against the House.

Mr. KELLY. Oh, no, sir. No, sir, we did not even discriminate in favor of the recommendations we made.

Mr. FOGARTY. Well, that is about what happened.

Mr. KELLY. Let me say that when we made our across-the-board analysis, we made an analysis of controllable and uncontrollable items and then we distributed the controllable items among extramural programs, intramural programs, and construction.

So in this appropriation we took out the money for the piers and treated it as construction. And the only item of construction, in order that the total Department's construction could take its share of the reserve, related to the deferment of CDC. So that the eight positions and the $18,000 represented the proportionate share of the operating expansion in the quarantine program comparable to the action taken with respect to all other programs.

POLICY DECISIONS ON RESERVES

Mr. LAIRD. Will you yield, Mr. Chairman?

Mr. FOGARTY. Yes.

Mr. LAIRD. I am having a hard time following these cuts.

Yesterday we made it very clear on the record that the Secretary was not accepting the advice of the President in making these cuts; so it seems that he must have accepted the advice from below. I am wondering if his budget officer is responsible. The statement from the President that you have read several times, Mr. Chairman, has not been followed.

Mr. FOGARTY. Mr. Kelly is the budget officer.

Mr. KELLY. I think you give me an honor and prestige beyond my humble station. I think it would be better said that I did the technical work necessary to carry out the policy decisions with respect to these reserves.

Mr. LAIRD. Well, who makes these policy decisions? I have not been able to put my finger on them yet.

Mr. KELLY. Well, the President directed that the reductions be imposed, and the Secretary requested my help in working out a method of accomplishing the determined reductions.

Mr. LAIRD. But the President in his instructions stated—and the chairman has been quoting this quite freely—

> I much prefer that obligational authority remain uncommitted when there is any doubt that expenditures would yield substantial returns to the national interest.

Now, that was the policy advice from above.

Mr. KELLY. Yes, sir.

Mr. LAIRD. And I am trying to figure out whether the Secretary took advice from above or whether he took advice from below.

Mr. FOGARTY. I heard that you Republicans were complaining about the Democrats being big spenders.

Mr. LAIRD. So the President followed our advice.

But he did not do it this year. He comes back with a——

Mr. FOGARTY. I know—a bigger one.

Mr. LAIRD (continuing). Bigger one.

Mr. FOGARTY. But not big enough, in my opinion, for many of these really worthwhile programs.

Mr. LAIRD. Next year he may take what we appropriate for 1963 and make bigger reserves.

I think, Mr. Chairman, this is what you referred to as an off-again, on-again policy.

Mr. FOGARTY. I cannot justify it.

But we can still correct this. These reserves can still be released. They have the power to release them.

Is that not your understanding?

Mr. LAIRD. That is my understanding.

PIER CONSTRUCTION

Mr. Fogarty. How are you progressing with the pier construction?

Dr. Telfer. The moneys have been turned over to the Corps of Engineers, U.S. Army, who are proceeding very well with their schedules. They will complete the construction of the pier by November of this year and they have now completed the preliminary plans and preliminary cost estimates and are working on completion of the final plans and specifications.

Mr. Fogarty. Are you satisfied with the progress that is being made?

Dr. Telfer. Yes, sir. The Corps of Engineers have been very cooperative and helpful.

RESERVES EFFECT ON POSITIONS AT INTERNATIONAL AIRPORTS

Mr. Fogarty. How many positions for international airports will not be established this year because of this reserve?

Dr. Telfer. Eight positions.

Mr. Forarty. All of them at the international airports; and the traffic is increasing all the time?

Dr. Telfer. It is, yes, sir.

Mr. Fogarty. And you are not able to put these additional positions on because of the reserve?

Dr. Telfer. That is right, sir.

Mr. Fogarty. Are these positions provided for in the 1963 budget?

Dr. Telfer. They are not in it, sir.

ADDITIONAL AIRPORT POSITIONS REQUESTED

Mr. Fogarty. Did you ask the Department for these additional positions in your first request?

Mr. Riggs. We asked the Department for 11 additional airport inspection positions in our preliminary estimate. However, Mr. Fogarty, when the Department made the allowance to the Division, they considered the impact of the 30 additional inspectors that were provided by this.

Mr. Fogarty. I did not get that last statement. What was that?

Mr. Riggs. The Department, in granting the allowance to the Division for 1963, took into consideration the increase of the 30 positions that were provided by the Congress for 1962.

Mr. Kelly. The Department's submission to the Budget Bureau, Mr. Chairman, did include the eight. As a matter of fact, when we made the budget submission we did not know about the reductions. Or at least we did not know when we established the budgets. Before we sent them we knew, but we had not had an opportunity to give them effect. And although I do not think we would have given them effect anyhow; the Budget Bureau did not allow in 1963 any of the positions that were eliminated in 1962. And this was uniform throughout.

Mr. Fogarty. Well, if the Secretary and the Bureau of the Budget do not release this reserve of $18,000, this is another concrete example of cuts that are lost and cannot even be recovered in 1963; is that right, unless this committee does something about it?

Mr. **Kelly.** As a matter of fact, Mr. Chairman, if the reserves were to be released, as you suggest, and we put the positions on in 1962, the 1963 budget would not provide for their continuation in 1963 unless the funds provided for some other purposes were substituted to continue their employment.

Mr. **Fogarty.** Well, this committee can do something about it.

Mr. **Kelly.** That is right, sir.

SHIFT OF PERSONNEL FROM THE STATE DEPARTMENT

Mr. **Fogarty.** About $150,000 of the increase is to shift certain clerical positions from the State Department to your payroll and to reimburse the State Department for administrative support costs. How is the program changing to make this change desirable?

Dr. **Telfer.** Mr. Chairman, these positions and this service provided by the Department of State will continue. The persons will be transferred from State's payroll to our payroll, and the Department of State will continue to provide us with the administrative support but will now be reimbursed for this.

INCREASED POSITIONS FOR VISA MEDICAL EXAMINATIONS

Mr. **Fogarty.** The major part of your increase is $308,900 and 18 positions to improve visa medical examinations abroad. About half of these, 10, are to be in Mexico City; is that right?

Dr. **Telfer.** No, sir. Of the 10, 5 are for Mexico City and 5 for the Caribbean area.

Mr. **Riggs.** On page 50, we referred to the ones for Mexico City, and on the top of page 51 we referred to the five that were for the Caribbean area.

INITIAL REQUEST TO THE DEPARTMENT

Mr. **Fogarty.** Doctor, tell me what you requested of the Department, your preliminary request?

Mr. **Riggs.** The Department reduced our estimates by 82 positions and $523,000.

Mr. **Fogarty.** Will you supply for the record a complete breakdown of those?

Mr. **Riggs.** Yes, sir.

Mr. **Fogarty.** Where they would be located and the necessity for the 82 positions.

Mr. **Riggs.** Yes, sir.

Mr. **Fogarty.** What did the Bureau of the Budget do then?

Mr. **Riggs.** They reduced the Department's estimate by 15 positions and $1,850,000.

Mr. **Fogarty.** Will you supply the same for that?

Mr. **Riggs.** Yes, sir.

(The requested information follows:)

Foreign quarantine activities

1962 comparable appropriation	$6, 082, 195
Operating budget	6, 064, 195
1963 preliminary estimate to Department	6, 665, 200
1963 Department request to Bureau of Budget	6, 142, 000
Congressional estimate	4, 292, 000
Net reduction by Department from PHS estimate (82 positions)	523, 200
Net reduction by Bureau of Budget of Department estimate (15 positions)	1, 850, 000
Net total, Department and Bureau of Budget reduction (97 positions)	2, 373, 200

	1963 reductions			
	Department of Health, Education, and Welfare		Bureau of the Budget	
	Positions	Amount	Positions	Amount
Preclearance inspections at Bermuda and Nassau			2	$26, 000
Airport inspectors	11	$67, 300		
Smallpox protection		12, 400		
24-hour coverage at 7 major crossing points	46	280, 700		
Yellow fever protection	6	59, 100		
TB protection			4	124, 000
Medical examination of visa applicants	19	195, 300		
Budget amendment	+21	+303, 600	1	2, 700
Disease intelligence	2	12, 600		
Research and development	7	92, 400		
Information activities	2	14, 500		
Improvement in operating procedures	1	9. 200		
Insect-borne diseases	9	76, 300		
Subtotal	82	516, 200	7	152, 700
Minor maintenance				[1] 38, 000
Extension of administrative reserve			8	56. 000
Miscellaneous mandatory reductions		7, 000		1, 495
Transfer of rents to GSA				1, 805
Conversion of appropriation to reimbursable financing				1, 600, 000
Total reduction	82	523, 200	15	1, 850. 000
Net total reduction by Department and Bureau of the Budget			97	2, 373. 200

[1] Presently included in GSA budget.

Proposed utilization of additional personnel reductions by DHEW

Airport inspectors (11 positions).—These international airport inspector positions would be assigned at Los Angeles, Calif., two; Miami, Fla., six; Boston, Mass., two, and Cleveland, Ohio, one. The addition of 30 positions added to the 1962 President's budget in effect advanced the authorization for staffing at airports undermanned because of increases in international traffic.

Smallpox protection (zero positions).—These funds were requested to pay part of the cost of smallpox vaccination of persons who normally and regularly come in contact with international travelers, and those who would come in contact with any case of smallpox discovered at points of entry.

Twenty-four hour coverage at major crossing points (46 positions).—These positions would provide 24-hour quarantine coverage at seven major border crossing points that receive the greatest portion of traffic from the interior of Mexico. With adequate 24-hour coverage at the crossing points with heaviest traffic, more than 95 percent of all traffic from the interior of Mexico would be covered. The additional positions would be assigned to Brownsville, Tex., seven; Eagle Pass, Tex., three; Hidalgo, Tex., seven; Laredo, Tex., five; Nogales, Ariz., eight; Calexico, Calif., seven; and San Ysidro, Calif., nine.

Yellow fever protection (six positions).—Additional personnel were requested to carry on investigations on mosquito taxonomy, biology, behavior, and resistance to insecticides; to improve survey and control methods; and to investigate other problems of prevention of implantation of yellow fever in our country from yellow fever infected areas. These positions would be assigned to San Juan, three; Miami, two; Honolulu, one.

Medical examination of visa applicants (*19 positions*).—To meet the needs of this country in examining its prospective citizens and other aliens planning a prolonged stay in the United States, additional staffing of medical officers and visa aids would be utilized. The additional positions would provide staffing at Manila, Philippines, Caracas and Buenos Aires, South America.

Disease intelligence (*two positions*).—To cumulate, analyze, and disseminate worldwide epidemiological data to Division of Foreign Quarantine staff and others concerned. These positions would be assigned to headquarters.

Research and development (*seven positions*).—To meet the need for investigative study into methods of control of psittacosis in psittacine birds, and determine the extent of mental illness among recently arrived immigrants. The additional positions would be assigned to San Francisco, three, and headquarters, four.

Information activities (*two positions*).—To provide information to travelers on how to protect their health when traveling abroad and how to prevent their becoming carriers of diseases from abroad. These positions would be utilized at headquarters.

Improvement in operating procedures (*one position*).—To improve procedural issuances governing application and standardization of essential health controls. The position would be located at headquarters.

Insect-borne diseases (*nine positions*).—To supervise application of predeparture disinsection measures to be accomplished by airline employees and to inspect aircraft arriving from foreign countries. These positions would be assigned to international airports.

REDUCTIONS BY BOB

Preclearance inspections at Bermuda and Nassau (two positions) to facilitate quarantine procedures of international travelers.

TB protection program (*four positions*).—Two mobile X-ray units containing 70-millimeter X-ray equipment are available. An inspection team consisting of one quarantine inspector and one X-ray technician would be assigned to each mobile unit. They would operate on a full-time basis to provide coverage at the crossing points not served by permanent X-ray installations.

Medical examination of visa applicants (*one position*).—One clerical position located at Hamburg, Germany, to be transferred from State Department to PHS payroll.

Extension of administrative reserve (*eight positions*).—To reestablish positions at Boston, (two); Brownsville, Tex., (one); Dallas, (one); Honolulu, (one); Los Angeles, (one); San Antonio, (one), and San Juan, (one), extended in 1963 due to the administrative reserve imposed on Division of Foreign Quarantine in 1962.

Mr. FOGARTY. Because of the conditions, do you still think that the preliminary estimate was a good one?

Dr. TELFER. Yes, we do, sir.

Mr. FOGARTY. I think this is an area that we ought to give sufficient funds. It certainly is in the national interest to keep these diseases out of this country.

OVERTIME PAY

Mr. DENTON. Some time ago we had a problem about the overtime pay of your employees.

Dr. TELFER. Yes, sir.

Mr. DENTON. As compared with the Customs Service and Immigration Service. How was that ever settled?

Dr. TELFER. Sir, we have a separate statute for our overtime from the other inspectional agencies, and it is not the same. It continues to be different. But we believe it is satisfactory for our men now.

Mr. Denton. Is it working out satisfactorily so that there is not a delay in examining the people who come ashore?

Dr. Telfer. Yes, sir.

Mr. Denton. How quick a service can you give?

Dr. Telfer. Sir, we require of the airline or shipping company, some notice that their plane or vessel is coming in, and then our people are forewarned and go to the place, the port or airport, ahead of time, so that they are there when the ship or plane arrives.

Mr. Denton. And there is no delay at all?

Dr. Telfer. There is no delay at all.

PROFESSIONAL STATUS OF REQUESTED PERSONNEL

Mr. Denton. Now, I notice that you formerly had 557 positions in this country, and that is increased to 559. And overseas, your number was formerly 73, and that is increased, too, to 103. And that means an increase of 2 in this country and 30 overseas.

Now, how many of that number are doctors?

Dr. Telfer. Sir, of the two for this country, they are each quarantine inspectors, not doctors.

Mr. Denton. What is a quarantine inspector?

Dr. Telfer. A quarantine inspector is a person who passed a civil service examination and qualification requirements including a medical background. Most commonly, they are men who have spent a career of 20 years in the Navy, Army, or Air Force as hospital corpsmen and usually they have had very good experience with health and medical problems in the other services.

Mr. Denton. Are they members of the Public Health Service, or are they civilian employees?

Dr. Telfer. They are civilian employees of the Public Health Service; they are with us.

Mr. Denton. All right.

Now, of the 557 that you have now, how many of those are doctors?

Mr. Riggs. Twenty-three, sir.

Mr. Denton. Just 23 doctors?

Mr. Riggs. Yes, sir.

Dr. Telfer. Well, that is in the domestic program. This is in the United States.

INSPECTION OF INCOMING PEOPLE

Mr. Denton. Why I asked you that question was, I went to one of your installations and there was just one doctor there.

Dr. Telfer. Yes, sir.

Mr. Denton. And this was a pretty good-sized port. He told me he had not only that port but two or three others.

Dr. Telfer. Yes, sir.

Mr. Denton. Now, is that sufficient doctors to inspect people coming into this country?

Dr. Telfer. Yes, sir.

Actually, we have a reserve that we can go to. We have contract doctors who are on call, if needed. So that this one doctor could call for help if he needed it. In each of those other places that he covered, there are contract doctors who could be used locally.

Mr. Denton. Are all these people examined by doctors when they come in the country?

Dr. Telfer. No, sir. Each quarantine inspector makes medical inspections, and he has the consultation of the doctor when needed. He will call the doctor if he sees a need.

Mr. Denton. That is, the corpsmen, or these civilian employees——

Dr. Telfer. Yes, sir.

Mr. Denton. Do the examination themselves, but if they need medical advice, they call the doctor?

Dr. Telfer. Yes, sir.

MEDICAL FUNCTIONS

Dr. Lowry. Mr. Denton, may I clarify that? I think there are two functions here that get confused. The people that we examine for visas overseas——

Mr. Denton. Yes.

Dr. Lowry. Are given a complete medical examination by a physician.

Mr. Denton. What doctor does that, Public Health Service doctor?

Dr. Lowry. About half the examinations are performed by Public Health Service physicians. About half are done by panel physicians. This is a complete medical examination.

The visa medical examination function is entirely different from the one done at the port of entry in the United States. At the port of entry, we are concerned with keeping quarantinable and communicable diseases out of the United States.

Mr. Denton. Do they not both do that?

Dr. Lowry. No. The examinations made abroad are to see whether the individuals who want to immigrate to this country have any condition which may make them liable to become public charges, or have any excludable disease.

Mr. Denton. I see.

Dr. Lowry. At the port of entry, we have staff who look at the vaccination record and inspect people. If they need medical help, they call a consultant which is the physician you spoke about.

INCUBATION PERIOD OF SMALLPOX AND YELLOW FEVER

Mr. Denton. Tell me, how long is the period of incubation of yellow fever and smallpox?

Dr. Telfer. In the case of smallpox, the actual incubation period can stretch between 1 and 3 weeks. The average figure would be 10 days. And then we have an official incubation period, according to our international agreement, of 14 days.

Mr. Denton. That is smallpox?

Dr. Telfer. That is smallpox.

PROCEDURE FOR PREVENTING THE ENTRANCE OF SMALLPOX

Mr. Denton. People come in on an airplane in a day. What precautions do you take to see that smallpox is not brought into this country?

Dr. TELFER. Well, sir, we inspect the people so that, in the event they have any indication of becoming ill, we will pick it up. Then we depend——

Mr. DENTON. That is just what I am trying to get at. Suppose somebody is infected and got the germ of smallpox, and he comes over here the next day. Now, how are you going to tell that?

Dr. TELFER. There, sir, we depend primarily on evidence that this person has a good immunity to smallpox, and we have a system whereby we expect—in fact, we know that 98 percent of the people who are coming in like that have had immunity built up before they are exposed to smallpox and are protected so that they do not come down with the disease.

Mr. DENTON. You mean they have been vaccinated?

Dr. TELFER. They have been vaccinated; yes, sir.

Mr. DENTON. Is it pretty general in foreign countries that they have vaccinations too?

Dr. TELFER. They are required to have vaccinations to enter our country, sir.

Mr. DENTON. That is right; but what I am trying to get at, is—and I do not understand yet——

Dr. TELFER. Yes.

Mr. DENTON. It takes 14 days from the time they are exposed until they develop the disease.

Dr. TELFER. Yes, sir.

Mr. DENTON. And suppose they come into this country 2 days after they are exposed?

Dr. TELFER. Yes, sir.

Well, of course, sir, you are pointing out a very great danger of risk that we have. But what we do, is we are conducting a campaign at all times of health education to let travelers, the travel industry, and other governments, know that everyone who comes to our country from a nonexempt area must have this protection—this vaccination.

So that travelers ordinarily know before they buy a ticket or at the time of buying a ticket to come to our country, that they do have to have this valid certificate of vaccination

PREVENTION OF YELLOW FEVER

Mr. DENTON. What do you do about yellow fever?

Dr. TELFER. What we do about yellow fever, we have two problems there. One would be in the introduction of a person sick with yellow fever. And there, again, we rely on this evidence of vaccination against yellow fever.

Well, we actually have three dangers: Another one is among the many monkeys that are being brought into the United States.

Mr. DENTON. Yes.

Dr. TELFER. There is a danger that they bring in disease and there are protective measures.

The third source of danger is the mosquitoes which may carry the disease and we have to have measures to avoid their coming in on airplanes and ships.

Mr. DENTON. We will recess briefly for this vote.

(Thereupon, a brief recess was taken.)

Mr. FOGARTY. The committee will come to order.

NEED FOR IMPROVED EPIDEMIOLOGICAL NETWORK

What are some of your real problems in this area, Doctor, that are not being met today?

Dr. TELFER. We need a better epidemiological network to pick up information regarding quarantinable diseases faster and get it to us faster. At the present time we are set up for this relatively well in Europe, and then we have a man in Hong Kong. But in other parts of the world where there are quarantinable diseases we do not have an adequate communications system.

Mr. FOGARTY. What will happen, or what could happen if we do not do something about this?

Dr. TELFER. Well, then, sir, we will ordinarily receive the information late. The information will go through governmental channels to World Health Organization and reach us eventually. But in our experience this is later than we would otherwise receive it through our own channels, and not quite as useful to us.

IMPROVED DISEASE INTELLIGENCE

Mr. FOGARTY. What else?

Dr. LOWRY. Along with this is the need for him to have in his office the kind of staff that can get this information from the foreign countries, organize it, and then distribute it to the ports of entry in the United States. It is all part of the system of disease intelligence, if you wish to call it that. This is linked up with the domestic program.

NEED TO STRENGTHEN MEXICAN BORDER ACTIVITIES

Mr. FOGARTY. It was about 2 years ago the Senate put in some additional funds to strengthen the Service down along the Mexican border. I have forgotten the number of additional positions, but I know Senator Chavez was very interested. We went along with some of the increase, and I have forgotten how much.

Is that working out satisfactorily, or do you need more men down there?

Dr. TELFER. We do not have the corresponding coverage of the entry points during the same hours as the Immigration and Customs Services. In other words, at seven of the major crossing points the other services have 24-hour coverage that the crossings are open, and we do not have the man-strength to keep them covered.

Mr. FOGARTY. How many do you need?

Dr. TELFER. We need 46.

Mr. FOGARTY. Additional?

Dr. TELFER. Additional inspectors for this.

Mr. FOGARTY. Just to man these seven crossings where the Immigration officials and Customs are working?

Dr. TELFER. That is right, sir.

NEED FOR FUNDS TO PURCHASE SMALLPOX VACCINE

In the area of prevention of introduction of smallpox we had a request in for $12,500 to buy vaccine to be used in promoting our campaign for vaccination of people around ports and airports; at ports, the men who work on the docks, and so on; and airports, everyone who works in the airport.

In some areas the local health departments are quite willing to help us with this and do the vaccinating if we can supply vaccine. We asked for this money to buy the vaccine.

YELLOW FEVER

In regard to yellow fever, we have a request for six persons. We have a need for increases in our program for prevention of introduction of yellow fever. This relates principally to the entomological program, controlling the insects around the airports and port areas. There is much more to be done in that area.

We have a need for an increase in our program to control the insects which may be carried in flight. This need is for better protective devices, better disinfestation, improved methods of doing it; and then disinfestation of planes leaving our country, going to other countries, to provide for carrying out our agreements to protect them from insects we have and they do not.

In the psittacosis area, we have a need for investigative study into methods for ridding the psittacine birds of psittacosis so that our quarantine restriction need not be so completely restrictive for bringing in the psittacine birds.

TUBERCULOSIS

We have a problem of introduction of tuberculosis, in that, referring to figures available to us, there is more tuberculosis morbidity on the other side of the Mexican border than our side.

We have a need for additional X-ray equipment and personnel to provide for the necessary X-ray screening at other areas of the border where people may cross.

We also have a need relating to the people coming to our country and passing through our screening system to prevent people with mental disease from coming to this country. We have a need for study to determine just how effective our screening process is—what is happening to these people after they come over here.

VISA EXAMINATION PROGRAM

Then we have a great need in the visa examination program, in the area where the examinations are conducted by panel physicians who are designated by State Department people locally without adequate aid, supervision, and advice from us, because it is just too great an area for us to cover with our present strength. We have a need to extend our coverage so that we can give the State Department assistance in this matter in such areas as South America and Central America, Africa and other parts of Asia where we are not in strength.

Mr. FOGARTY. Did you say you wanted Dr. O'Rourke to speak to some particular part of this budget?

Dr. TELFER. Yes, sir. In this area of the prevention of the introduction of quarantinable diseases, the first thing we need is information——

Dr. Lowry. Excuse me. I asked Dr. O'Rourke to come, because I thought you might be interested in smallpox. He has recently been in England, and I noticed you asked some questions in that respect.

Mr. Fogarty. I think that is a good idea. I met Dr. O'Rourke in London and Rome. I thought he was doing good work over there, and I am glad to see him here now.

Go right ahead, Doctor.

Dr. O'Rourke. Thank you, sir.

PROCEDURE FOR REPORTING QUARANTINABLE DISEASE

I think Dr. Telfer had in mind, Mr. Chairman, that it would be valuable to say how he set up this service of reporting disease into this country.

His predecessor, Dr. Sackett, asked me about 3 years ago to establish an epidemiologic system in Europe that would allow us to receive information on the quarantinable diseases in a faster method than we got through the usual channels of the World Health Organization and our own State Department network.

So, as a result, I contacted officials in the various ministries of health in the European countries and the preventive medical departments, in our Air Force headquarters in Wiesbaden, the Army headquarters in Heidelberg, and our Navy headquarters in Naples, Italy. By visiting the officials in these various countries, our own Armed Forces representatives, and keeping informal contacts with the people in the International Quarantine Division in the World Health Organization in Geneva and the European headquarters in Copenhagen, I was able to obtain information directly by telephone or personal contact and relay it to Division of Foreign Quarantine headquarters here in Washington on the outbreaks of smallpox that occurred over in Europe since 1956, of which I think there were seven while I was there.

This enabled the Quarantine Division to alert their inspectors in this country, particularly when some of these cases could have been brought over by jet aircraft—before the planes actually landed in this country. They could issue alert cards and put out surveillance notices to local and State health departments to observe the people who had been in contact with people with smallpox.

Mr. Fogarty. Now, because of your experience and your work over there, how do you think we can improve the present system? Every system can be improved.

Dr. O'Rourke. Oh, yes. Europe was the obvious place to start this, because we had quarantine offices there, and I was already on duty as a visa examining physician at the time.

But the real need is in the areas where these diseases are endemic; particularly in southeast Asia and South America where we do not have these services now.

WEAKNESSES OF VACCINATION CERTIFICATE SYSTEM

Just as the British had their trouble from Pakistan, we might also. This problem is not solved by the requirement that people coming into this country must have a vaccination. The vaccination certificate is a good way of doing this, but it is not infallible. The vaccine may be old or it might not have been refrigerated properly so that the revaccination may not have taken.

And as you may know, about 6 or 7 years ago the requirement that the revaccination must be read by a physician was taken out of the International Sanitary Regulations. And so it does not mean that the person who has had the vaccine applied necessarily has a "take."

In addition, some of these vaccination certificates are not really evidence that a person has been vaccinated. I know in one country in Europe I found that you paid $3 for a vaccination certificate that was legal and $5 for a vaccination certificate without being vaccinated. In other words, you pay $2 more and you did not have to be vaccinated.

So that, besides depending upon this device, we have to have current information on where these quarantinable diseases exist so that the quarantine people in this country can be alerted of any people who have the disease or who have been in contact with it.

When a plane lands, say, in Idlewild, the occupants could be in any part of this country within 6 or 7 hours, and we may not find out who they are. If we are able to identify them before they scatter, then we can issue warning and surveillance notices.

ORIGINAL REQUEST FOR NEW YORK AND MIAMI AREAS QUARANTINE INSPECTORS

Mr. Fogarty. Dr. Telfer, what did the officer in charge of the New York area ask you originally in positions for 1963?

Dr. Telfer. I have the total figure we asked for, sir.

Mr. Fogarty. No, I am talking about your man in New York. Captain Holle. What did he request?

Dr. Telfer. May we furnish this for the record?

Mr. Fogarty. Yes.

It has been my understanding that they had been undermanned up there is for some time and also, I thought they could do a better job at the Miami Airport. I thought they needed more personnel down there too.

Will you supply for the record what the Miami area asked for, also?

Mr. Riggs. Yes, sir.

(The information requested follows:)

Foreign quarantine activities, New York and Miami, 1963 preliminary request

	New York positions		Miami positions	
	Requested	Allowed	Requested	Allowed
Inspectors	94	85	32	31
Other	59	59	28	27
Total	153	144	60	58

Mr. Fogarty. Mr. Denton.

SMALLPOX IN THE UNITED STATES

Mr. Denton. How long has it been since we had a case of smallpox and how long since we had yellow fever in this country?

Dr. Telfer. Sir, smallpox was last introduced into the country in 1947. There were cases reported up to 1952, but at that time there was no system of checking on a diagnosis of all reported cases. And as far as we know for certain, there have been no cases since 1947. And that is smallpox.

Mr. Denton. Do the doctors have some difficulty diagnosing smallpox, since they have not seen a case of it?

Dr. Telfer. Yes, sir. Smallpox is easy to diagnose when it is a classical case in full bloom. But it often is not like that, or often the case is seen in a different stage, and it is very difficult to diagnose by doctors anywhere, but more especially so for doctors who have never been familiar with it.

Mr. Denton. Off the record.

(Discussion off the record.)

Mr. Denton. On the record.

PROBLEMS OF VACCINATING FOR SMALLPOX

Let me ask you another thing about a vaccination that does not take. What does that mean? Does that mean that a person is immune and cannot get smallpox?

When I was a small child, I had a vaccination and they tell me I broke out all over. But in World War I, they vaccinated me three or four times, and finally they got a little pimple there. And they told me it took. But since then, I have been vaccinated and they tell me it does not take.

Dr. Telfer. Well, one would expect if you are vaccinated now with a good virus, that is, a good vaccine, that you would be likely to develop the immediate reaction of just a small raised red area at the site of the vaccination, and that would come up in 2 or 3 days.

Mr. Denton. And year before last, when I went overseas, I had to get a vaccination, and I said it would not do any good. I know my wife got vaccinated; she got a sore from the vaccination but I did not. I just wonder; does it mean that you are immune or does it mean that you cannot be vaccinated?

Dr. Telfer. If there is absolutely no reaction whatever at the point of vaccination this most often will mean that something is wrong with the vaccination process, and you should be repeatedly vaccinated. And in practically all people—there may be exceptions, sir.

Mr. Denton. Now, in World War II, they vaccinated me and said: Well, it did not take. And they had said: "Well, that is all right, let it go at that." But in World War I they just kept vaccinating me.

Dr. Telfer. We recommend that a person be vaccinated repeatedly until he shows some reaction to the vaccine. And in a person who has immunity already he will just develop this small red spot.

Mr. Denton. They gave me a certificate without any scar.

Dr. Telfer. Yes, sir. This little red mark of immediate rection does not produce a scar. It is just a temporary scratch.

Mr. DENTON. There was only the scratch where they scratched me, that was all.

Dr. TELFER. Well, then you should be revaccinated, sir. I would invite you——

Mr. DENTON. Of course, I do not want to make a habit of it.

Dr. TELFER. Well, it is a good habit if your travel takes you out of the country, or even if it is extensive within the country.

And, sir, I would invite you to come to our quarantine office and be vaccinated.

Mr. DENTON. That is all.

Mr. FOGARTY. Do you have anything else you want to say, Doctor?

YELLOW FEVER IN THE UNITED STATES

Dr. TELFER. Sir, I did not answer the question regarding yellow fever.

The last epidemic of yellow fever was in New Orleans about 1905. There were some cases apprehended in quarantine which reached our ports as late as 1924, I believe.

Mr. FOGARTY. Is there anything else you want to say, Doctor?

Dr. TELFER. No. Thank you, Mr. Chairman.

Mr. FOGARTY Is there anything else you want to add, Dr O'Rourke?

Dr. O'ROURKE. No, sir, Mr. Chairman.

Mr. FOGARTY. Thank you very much.

SCIENTIFIC ACTIVITIES OVERSEAS (SPECIAL FOREIGN CURRENCY PROGRAM)

WITNESSES

DR. MARTIN M. CUMMINGS, CHIEF, OFFICE OF INTERNATIONAL RESEARCH, NATIONAL INSTITUTES OF HEALTH

DR. JAMES A. SHANNON, DIRECTOR, NATIONAL INSTITUTES OF HEALTH

DR. LUTHER L. TERRY, SURGEON GENERAL

JAMES F. KELLY, DEPARTMENT BUDGET OFFICER

Program and financing

[In thousands of dollars]

	1961 actual	1962 estimate	1963 estimate
Program by activities: Foreign health research (total program costs—obligations) (object class 25)	28	12,679	2,800
Financing:			
Unobligated balance brought forward		−3,679	
Unobligated balance carried forward	3,679		
New obligational authority (appropriation)	3,707	9,000	2,800

Mr. FOGARTY. Dr. Cummings, I believe you are next.

Dr. CUMMINGS. Mr. Chairman, since this is my first appearance——

BIOGRAPHICAL SKETCH OF DR. CUMMINGS

Mr. Fogarty. We are glad to have you. You tell us who you are and give us your background.

Dr. Cummings. My name is Martin Marc Cummings. I was born in New Jersey in 1920. I am a graduate of Bucknell University in Pennsylvania and of Duke University School of Medicine in North Carolina.

After 2 years of clinical training at the U.S. Public Health Service Hospital in Boston, I had several years of research training in the United States and abroad which led to a position as chief of the Tuberculosis Research Laboratory at the Communicable Disease Center in Atlanta.

Thereafter I was Director of Research for the Veterans' Administration and became chairman of the department of microbiology and associate professor of medicine at the University of Oklahoma School of Medicine prior to my joining NIH. I have engaged in research in fields of infectious diseases and epidemiology for 15 years, publishing 75 scientific articles during this period.

My academic background includes professional appointment at Emory University School of Medicine where I was associate professor of bacteriology and assistant professor of medicine and professorial lecturer in microbiology at George Washington University.

General Statement

Mr. Fogarty. Go right ahead with your statement, Doctor.

Dr. Cummings. Mr. Chairman and members of the committee, I appreciate the opportunity to report to you on the plans and progress of the Public Health Service in connection with the conduct abroad of research programs supported by U.S.-owned excess foreign currencies authorized by Public Law 480, as amended.

In 1961 the Public Health Service had an appropriation of $3,707,000 for this program, all allocated to the National Institutes of Health. In 1962 the appropriation was $9 million: $5,059,000 allocated to the National Institutes of Health, $3,274,000 allocated to the Bureau of State Services, and $667,000 allocated to the National Library of Medicine. The Public Health Service is requesting $2,800,000 for 1963: $2,444,000 for use by the Bureau of State Services and $356,000 for the National Library of Medicine. The National Institutes of Health is not asking for additional funds for 1963.

NATIONAL INSTITUTES OF HEALTH

The total appropriation to the National Institutes of Health for 1961–62 was $8,766,000. The National Institutes of Health is not requesting additional funds in 1963 since the amounts already appropriated are considered sufficient for the development of collaborative projects at a pace which will permit an appropriate evaluation which will take into account the accomplishments of these projects in relationship to the investment of scientific and administrative manpower which is required both in the United States and abroad.

The National Institutes of Health has programed research with Public Law 480 funds in nine countries: Brazil, Burma, Egypt, India, Indonesia, Israel, Pakistan, Poland, and Yugoslavia. All seven Institutes and the Division of Biologics Standards have developed a total of 58 proposals for collaborative research in these countries.

The National Institutes of Health has 8 active projects, obligating $1,622,900 in five countries; negotiations have been completed for 17 additional projects, totaling $1,959,250. These projects can be initiated as soon as the agreements have been signed by the host government. The remainder of the proposals are in various stages of negotiation. It is expected that these projects, as they become activated, will utilize all the funds appropriated.

Active projects include studies on cancer, heart, infectious, and nutritional diseases. Collaborative research on the medicinal properties of rare plants, anticancer activity of snake, spider, and scorpion venoms, and the development of methods of measuring oxygen isotopes is in progress. Additional studies of mental disorders and neurological diseases will be activated this year.

BUREAU OF STATE SERVICES ACTIVITIES

The Bureau of State Services is planning research in community and environmental health programs in five countries: Egypt, India, Israel, Poland, and Yugoslavia. The communicable disease programs include studies on the relationship between human and animal diseases, virus vaccine improvement, and environmental health studies of water supply and sewage disposal.

These projects will allow us to take advantage of a wide variety of social, climatic, ethnic, dietary, and other conditions not found in the United States in our attempts to learn more about the cause, treatment, and prevention of disease. The Bureau of State Services research plans will also include industrial hygiene studies in highly industrialized urban areas abroad, a field of considerable concern to the United States.

NATIONAL LIBRARY OF MEDICINE ACTIVITIES

The National Library of Medicine plans to continue its programs for the improvement of international communications in the biomedical sciences. The library has already programed funds for extensive translation services from the Slavic languages into English. Future plans provide for translations to be carried out in Israel (Russian into English), Poland, and Yugoslavia, and also include a project to initiate a scientific translation program in India.

We are convinced that collaboration between scientists of the Public Health Service and scientists of the various cooperating countries abroad provides unusual opportunities for advancing the health and medical knowledge of the American people and that of the people of other lands.

Mr. Fogarty. Thank you, Doctor. We will place your full prepared statement in the record.

(Dr. Cummings' prepared statement follows:)

STATEMENT BY CHIEF, OFFICE OF INTERNATIONAL RESEARCH, NATIONAL INSTITUTES OF HEALTH, PUBLIC HEALTH SERVICE, ON SCIENTIFIC ACTIVITIES OVERSEAS (SPECIAL FOREIGN CURRENCY PROGRAM)

Mr. Chairman and members of the committee, I appreciate this opportunity to report to you the progress made by the Public Health Service in the research and other scientific activities supported by excess U.S.-owned foreign currencies. These programs have been carried out by the National Institutes of Health, the Bureau of State Services, and the National Library of Medicine, under authorization contained in section 104(k) of Public Law 480 and its relevent amendments, and in pertinent provisions of Public Law 86–610, the International Health Research Act of 1960.

In order to save time for the committee, and since the National Institutes of Health has had a major role in the development of this program, I have been asked to present a consolidated report on all Public Health Service programs for the current fiscal year, together with plans for 1963.

Before entering into a description of the programs, you may be interested in the total Public Health Service appropriations for the purchase of Public Law 480 currencies. In 1961 these amounted to $3,707,000, the whole amount to support National Institutes of Health research programs.

In 1962 a total of $9 million was appropriated: $5,059,000 for the National Institutes of Health; $3,274,000 for the Bureau of State Services; and $667,000 for the National Library of Medicine.

For 1963 the Bureau of State Services is requesting $2,444,000 and the National Library of Medicine, $356,000, the requests totaling $2,800,000. The National Institutes of Health is not asking for additional funds at this time.

These funds, both those appropriated and those requested for 1963 aggregate $15,507,000 divided as follows: $8,766,000 for the National Institutes of Health; $5,718,000 for the Bureau of State Services; and $1,023,000 for the library.

The totals are significant since the appropriation language provides that funds "remain available until expended." This is particularly appropriate in view of the complications encountered in the initiation of these multicountry programs, as will be seen later.

I shall begin with the Bureau of State Services. In requesting $2,444,000 for 1963, the Bureau of State Services plans to use $1,582,000 for research in the field of community health problems, and $862,000 for environmental health studies.

This would enable the Bureau of State Services to utilize further the efforts of well-qualified scientists of other nations as well as our own in the solution of our health problems. Specifically, it would permit the evaluating and testing of control measures under conditions of high disease prevalence, provide more rapid evaluation of therapy, develop greater understanding of widespread health problems by studying diseases and environmental problems in other areas of the world, and develop epidemiological and ecological information and diagnostic methodology.

In the area of community health, there is interest in testing the efficiency and accuracy of mammography as a tool in the diagnosis of breast cancer. It is proposed to study the epidemiologic differences in heart disease in the United States and Israel. In the communicable disease field, there are plans to conduct investigations on the ecology and control of insect-borne virus diseases, the efficacy of treatment regimens on animal diseases transmissible to man, and measure the effectiveness of smallpox lyophilized vaccine. In the area of dental public health, it is proposed to study factors influencing the deposition of oral calculus.

In 1962—the year in which the Bureau of State Services initiated its special foreign currency support program—$3,274,000 were earmarked for research in four countries: India, Israel, Poland, and Yugoslavia. Programs were developed in two major fields, community and environmental health.

One agreement calling for cooperative studies on characteristics of unusual mycobacteria has been negotiated in India and is awaiting the concurrence of the Ministry of Health. Three other agreements are under negotiation in that country. One involves a study of respiratory virus infections; another, a study on the relationship of enteroviruses to central nervous system disease in children; a third involves research on the enteroviruses.

Discussions have been held at the government-to-government and scientist-to-scientist levels in Poland for the negotiation of five projects: An agreement involving a study of insect-borne encephalitides in Poland has been returned to that country for appropriate signatures; four other agreements to study tuberculosis, trichinosis, staphylococcal infections and rabies are being prepared.

These are plans for the development of research projects in Israel in a variety of fields including studies of rabies, gonococcal infections and their susceptibility to penicillin, a measure of dietary exposure to DDT, the reuse of water, and evaporation control of reservoir surfaces.

The Bureau of State Services also developed plans for six projects in the field of communicable diseases in Yugoslavia. These include studies of anthrax, insect-borne diseases, diarrheal diseases and rabies vaccine development. Negotiations at governmental and scientific levels in Yugoslavia have not been conducted.

Rapid economic growth in many countries in recent years has brought with it serious environmental health problems. These have at the same time opened numerous research opportunities for studies beneficial to the United States—studies that may be undertaken through the use of Public Law 480 funds.

In 1963 the Bureau of State Services is proposing studies of the factors in the cause and control of air pollution. This research would be carried out in highly industralized areas of Poland. It is expected that new insight may be gained in the problems of orientation of workers to new occupations. This research is proposed for Israel to take advantage of the unique situation prevailing in that country. Other studies may be undertaken in Egypt involving research in village and household water supply protection. Plans have also been made for a study of industrial hygiene problems in India.

Such new projects, coupled with those initiated in 1962, offer dual opportunities for valuable additions to our knowledge of environmental health problems and also for the establishment and maintenance of scientific communication channels in those countries.

In the environmental health area, perhaps more than in any other health field, there is a need to develop an understanding of the political, social, economic, and cultural factors which influence research and its application to technical development.

I would like next to turn to the program developed by the National Library of Medicine with the support of Public Law 480 funds. This program is for the improvement of international communication in the biomedical sciences which the library initiated in 1960. Until 1962 these activties were funded by the National Science Foundation which, under Executive Order 10560 of September 9, 1954, established contracts overseas and allocated translation quotas to participating executive agencies. Publications for translation were selected by the library after consultation with U.S. scientific groups; these were translated and published overseas and distributed to 400 medical research libraries. They were also offered for sale through the Office of Technical Services, Department of Commerce. Totals of 4,000 pages in 1960, and 2,500 pages in 1961 were so distributed.

In 1962, under a delegation of authority in accordance with Executive Order 10900, and a working agreement made with the National Science Foundation, the library requested $667,000 in foreign currencies divided among Poland, Yugoslavia, and Israel. To date, the library has programed with these funds approximately 20,000 pages of translation for completion in 1962–64, and has transferred $580,000 to the National Science Foundation to provide services under contracts established in these countries. The library retains programing responsibility and selects and distributes the translations. There follows a breakdown by countries:

In Poland $174,000 will provide for 2 years of translation services from Polish. In Yugoslavia $139,000 will provide for 3 years of translation services from Serby-Croat. And in Israel $267,000 will provide for 1 year of translation services from Russian.

The balance of $87,000 will be obligated during the remainder of 1962 for new projects which cannot be accommodated under the existing translation contracts. These include the preparation and publication of scientific critical review papers, and the establishment of medical bibliographic centers to supplement such activity in the United States.

The $356,000 requested in 1963 is less than in 1962. since two of the three long-term translation requirements have been met and will not need renewal until 1964 and 1965. It is intended to establish a 3-year contract in Poland for the translation of significant biomedical publications from Polish to English, including support for the original publication in English of five research journals. Ongoing activities in Yugoslavia and Israel will be supplemented to include the preparation of critical review papers by outstanding scientists. Scientific translation potentials in India will be explored in a pilot program.

This brings us to a review of the status of the Public Law 480 programs of the National Institutes of Health.

As already indicated, the National Institutes of Health is not at this time asking for additional funds for 1963. A total of $8,766,000 has been made available for this program during the past 2 fiscal years.

We consider it appropriate and necessary at this time to evaluate the effects of these programs on the National Institutes of Health and the scientific communities of foreign countries before seeking to enlarge our efforts beyond the limits of the funds now appropriated.

We are pleased at the opportunity the Public Law 480 funds represent for the conduct of collaborative research in areas of the world which offer unusual climatic, ethnic, cultural, and pathological patterns that do not exist in the United States. They make available to our scientists areas of research that are needed to complete or supplement research conducted in the United States in furtherance of the health of the American people.

Public Law 480 funds have so far been made available to the National Institutes of Health in nine countries: Brazil, Burma, Egypt, India, Indonesia, Israel, Pakistan, Poland, and Yugoslavia. The National Institutes of Health has developed a total of 58 proposals for collaborative research projects in these countries to be supported by use of local currencies. They cover a very wide range of interests related to the unique research opportunities and capabilities in those countries. I should like to give the committee a rundown of the current status of these proposals:

Eight of them are now underway and negotiations have been completed on 17 others which will be started in the immediate future.

Seven projects have been planned in some detail by scientists in correspondence with their foreign counterparts, but still await completion of formal action for approval. All of these will be financed by 1961 funds.

Lastly, 26 other research projects for financing from 1962 funds are in various stages of negotiation.

The active research projects and those in various stages of planning or negotiation are expected to utilize the $8,766,000 so far appropriated to the National Institutes of Health.

I should like, if it pleases the committee, to summarize briefly the nature and status of this program in each of the nine countries in which Public Law 480 funds have been made available.

Brazil.—There are three active projects calling for collaborative studies of snake, spider, and scorpion venoms for possible anticancer activity; a study of schistosomiasis, a widespread disease transmitted by aquatic snails; and the evaluation of medicinal possibilities of unknown or rare plants found in Brazil.

Burma.—Two projects still in the planning stage will involve joint studies of malnutrition and malaria.

Egypt.—There is one active project involving metabolic studies of various aspects of anemia; two projects awaiting consideration by the Egyptian Government will involve the study of anemia in infants and children, and studies of blood circulation in adults. Seven other collaborative projects being planned for Egypt would involve research on intestinal parasites, eye diseases, pellagra, cancer, and studies of the relation between schistosomiasis and several other diseases.

India.—There is a large-scale collaborative project underway in India in the field of nutrition. It involves research on vegetable protein supplements, an appropriate study in a country whose population is largely vegetarian. Four projects await the signature of Indian Government officials to become active. They involve further nutritional deficiency studies, health problems of normal adolescents, a search for potential anticancer agents, and the establishment of a cancer registry.

Five other studies projected for India that are ready for negotiation include collaborative studies in malaria, filariasis, a neurological study, a study of new tranquilizing agents, and plans for the exchange of cholera information.

There are 10 more projects being planned for India which involve reseach in diabetes, certain blood conditions found in the tropics, peridontal infections, cholera, virus diseases, cardiovascular and cerebrovascular diseases, neurological disorders, studies of infant development, and the medicinal properties of native botanicals.

Indonesia.—Negotiations are underway with Indonesia involving studies of mycoses or fungus diseases and the relationship of nutrition to heart disease.

Israel.—Two projects are now underway in that country: epidemiologic studies of heart disease in well-defined population groups and a study of improved methods for the measurement of exygen isotopes which are produced in that country. Partial support was provided for a symposium on human genetics.

Six other projects are under discussion with Israeli scientists. These involve further studies of oxygen isotopes (O^{18}) and of cardiovascular disease, and studies of the central nervous system, eye diseases, and infant development.

Pakistan.—The National Institutes of Health is carrying on a collaborative study of the epidemiology of malnutrition in that country. Awaiting the Pakistani Government's final approval is a broad study on measures for the prevention and the ultimate eradication of cholera. Three other projects are in the planning stage with Pakistan, for further cholera and malnutrition studies, and research on diabetes.

Poland.—Awaiting signature of Polish scientists and officials are nine collaborative projects including a study of preconceptual causes of defects in children, normal and pathological brain research, studies of muscular diseases, hypertension, and kidney disorders. Another project, in the planning stage, calls for research in trichinosis, a common parasitic infection.

Yugoslavia.—A project for the study of the epidemiology of heart disease is awaiting the host government's signature; a virus disease research project is now being planned.

We have always sought approval by the host governments for the use of these funds for collaborative medical research as a prerequisite to the negotiation of project agreements. This assures that the research proposed is of mutual interest to each foreign nation and to the United States.

However, we have been somewhat handicapped by the reluctance of some governments to approve expenditures that they fear might be inflationary or unduly demanding on their limited supply of scientists.

Our experience to date has revealed that the conduct of these collaborative medical research projects is very demanding on the time of National Institutes of Health scientistes. We are now considering the feasibility of utilizing some of these funds through a research grants mechanism in addition to our mutual agreement approach. We will, of course, continue to insist on the support of high quality research projects which have relevance to our mission.

Despite these considerations, which made for a slow launching of the program in 1961, we are pleased to be able to report to the committee substantial progress in most host countries and that promising negotiations are now underway in others. We believe we now have this program firmly underway and shall be able to report continued progress in future years.

1963 BUDGET PROPOSALS

Mr. Fogarty. I thought this was a real worthwhile program, but it seems that some other people do not, according to your request this year. The appropriation for 1962 is $9 million. The request for 1963 is $2,800,000. The main reason for the decrease is that the National Institutes of Health will not participate in the program next year. Why not?

Dr. Shannon. Mr. Fogarty, these appropriations are in the category of so-called no-year appropriations. We find that the administrative work of developing these programs is sufficiently great as compared to our initial expectation that we are working against a backlog of funds made available in 1961 and 1962. We will have adequate funds for negotiating purposes for 1963 and will go forward very actively with the program in those countries that we have been allowed to approach.

1961 OBLIGATIONS

Mr. FOGARTY. The appropriation for 1961 was $3,707,000. How much of this did you obligate in 1961?

Dr. CUMMINGS. We now have obligations which total about $1,600,000.

Mr. FOGARTY. What did you obligate in 1961?

Dr. CUMMINGS. Total was $1.6 million for 1961, and $1.9 million for 1962.

Mr. FOGARTY. Maybe you had better consult your budget man. According to the committee print, that is not quite right.

Dr. SHANNON. These negotiations are conducted on a fairly continuous basis. There are some started fully a year ago that are just beginning to come through now.

Mr. FOGARTY. You could answer the question: How much did you obligate in 1961?

Dr. SHANNON. In 1961 we obligated nothing, sir.

Mr. FOGARTY. I have about $27,000.

Dr. SHANNON. Yes, sir; but this was largely expenses for doing the administrative negotiations. No negotiations were completed in 1961.

Mr. FOGARTY. What happened?

DIFFICULTIES IN GETTING PROGRAM STARTED

Dr. CUMMINGS. Mr. Chairman, the mounting of this program has presented several difficulties. In the first place, whereas the scientific negotiations are easy to effect and go forward quickly, the obtaining of signatures of appropriate governmental officials abroad often takes many months. Thus our obligation of $1,600,000 this year to date, utilizing 1961 funds, reflects about a 6- to 9-month lag.

Secondly, the 1962 funds were not available to the Bureau of State Services until several months ago. They, in fact, have had very little opportunity to complete their negotiations.

The planning for the research, however, has gone forward quite well. The research proposals and the agreements are drafted in good, clean form. I would forecast that the delays will diminish in time.

Mr. FOGARTY. How much has been obligated from the beginning of the program to now?

Dr. CUMMINGS. In the National Institutes of Health we have obligated $1,622,900 from the 1961 appropriations. We have informal agreements totaling $1,959,000 pending.

DECREASE IN APPROPRIATIONS REQUESTED

Mr. FOGARTY. I notice that in addition to NIH dropping out, the other two Bureau programs are going down in 1963.

Dr. CUMMINGS. The Bureau of State Services——

Mr. FOGARTY. And the Library.

Dr. CUMMINGS. I do not believe the Bureau of State Services has dropped significantly but the National Library of Medicine has. We have with us Mr. Scott Adams, of the National Library of Medicine, who, I think, can explain that.

Mr. FOGARTY. They both are estimated to drop from 1962 to 1963; the Bureau of State Services went from $3,274,000 to $2,444,000, and the Library from $667,00 to $356,000.

Dr. CUMMINGS. That is correct.

INTERNATIONAL HEALTH ACTIVITIES

Mr. FOGARTY. Place in the record a comprehensive statement on the international activities of the entire Public Health Service, setting forth a description of each program, the amount being spent on it, and the worthwhile results of what you expect.

Dr. CUMMINGS. Yes, sir; I would be pleased to put that in the record.

(The information follows:)

SUMMARY—INTERNATIONAL HEALTH ACTIVITIES OF THE BUREAU OF STATE SERVICES

1. *Training services for nonnationals*

The national public health arm of the U.S. Government received a substantial number of visitors during 1960, and it will probably continue to receive a large volume of visitors in future years. Such visitors make a variety of demands on the service visited: Some merely wish a few hours of general orientation to the plant and overall program, others seek an abbreviated inservice research or training experience, and still others wish to take formal training courses or instruction, as at the Communicable Disease Center and the Sanitary Engineering Center.

(*a*) *Community health area.*—The Divisions of Nursing, Chronic Diseases, Accident Prevention, Dental Public Health, and Resources and Hospital and Medical Facilities provided training or orientation to approximately 49 nonnationals and received nearly 150 visitors from foreign countries.

Extensive training activities were conducted by the Communicable Disease Center. During 1960, it furnished training to 123 persons, 39 attending regularly scheduled or special courses, 66 receiving individual training, and 18 attending a course and received individual counseling from scientists and staff members. In total, these add to some 1,846 man-days, or to over 7 man-years.

The International Education and Exchange Branch of the Division of Community Health Practice is responsible for programing and supervising the training of foreign health personnel sponsored by the International Cooperation Administration, World Health Organization, and the Department of State. Some 640 foreign students and visitors came to this Branch for counseling and guidance during 1960. The total U.S. experience was planned for 429 persons and, for the others, only a part of their program was organized or suggestions were offered to other agencies as to where they might visit.

The Public Health Education Branch of this Division also received 16 foreign visitors, and 12 nonnationals were received for orientation or staff consultation by the Arctic Health Center.

A comprehensive 1-month program for 18 physicians, architects and engineers from the Ministries of Health for England and Scotland was organized by the Division of Hospital and Medical Facilities. A formal 2-week seminar on the operation of the Hill-Burton program was followed by visits to a Public Health Service regional office, several State agencies, and selected hospitals and medical centers, including the American Hospital Association in Chicago. Their visit was sponsored by the British Ministry of Health and the Department of Health for Scotland.

(*b*) *Environmental health area.*—During 1960, the Taft Sanitary Engineering Center received 175 visitors. Of this number 127 received training or consultation.[1] Additionally, the Division of Occupational Health received 20 persons from 11 countries for training purposes and 86 visitors from 26 countries.

Among the special training activities in 1960, the following are worth special mention: (1) The Technology Branch of the Communicable Disease Center developed a training course on vector control demonstration project techniques in cooperation with the El Paso office of the Pan American Health Organization, New Mexico Department of Health, and the Texas Department of Health. The course, conducted in El Paso, Tex., and Las Cruces, N. Mex., was attended by 24 Mexican nationals and 12 Americans. The PAHO arranged for simultaneous translations of the lectures and the New Mexico Department of Health translated and reproduced six CDC training guides on vector control in Spanish.

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[1] The Divisions of Water Supply and Pollution Control, Air Pollution, Radiological Health, and the milk and food programs of the Division of Engineering Services utilize the center for their training activities; hence, these figures consolidate training activities of these organizational entities.

Each year SEC organizes a special training course for foreign engineers and scientists who have completed formal graduate work in the United States under the sponsorship of ICA and WHO. This 2-week course (given last in July 1960) had 22 engineers and scientists from 15 countries. SEC also conducted a special course in 1960 at the request of PAHO and ICA for 38 persons. The participants were staff engineers and senior consultants of these organizations, serving either as zone engineers or advisers to foreign governments on sanitary engineering problems.

2. *Collaboration and consultation with intergovernmental and international organizations and foreign governments*

The Bureau of State Services includes a number of individuals who have a national and international reputation in their respective fields. It is not surprising, therefore, that a number of the key staff members receive requests for collaboration and consultation to international bodies and to foreign governments. There were a large number of requests for consultation during 1960 and, while such requests will continue to be received from time to time on an ad hoc basis, there is no method for forecasting their frequency or importance. Each such request will have to continue to be judged on its individual merit and on whether Bureau programs can afford the contribution since virtually all are devoid of full compensation.

(*a*) *Community health area.*—Examples of collaboration by divisions within this area follow: The Deputy Chief, Division of Nursing, was assigned for a 3-month period to the Directorate General of Health of India, for assistance with a nursing survey, on an appointment with ICA in response to request from the Indian Government.

At the invitation of the Union of Soviet Socialist Republics, the Chief of the Epidemiology Branch, CDC, attended the Soviet-American Poliomyelitis Conferences to discuss problems of mutual interest concerning poliomyelitis and the use of live polio vaccines. At the request of the German Minister of Health, he also spent 3 days in West Berlin to evaluate the unusual number of poliomyelitis cases occurring there.

At the request of the Pan American Sanitary Bureau, the Chief of the Veterinary Public Health Laboratory, CDC, traveled to the Pan American Zoonoses Center at Azul, Argentina, and served as consultant on leptospirosis to assist in establishing diagnostic and epidemiological studies and in conducting a short training course in this field. He also assisted in organizing a course and gave lectures in veterinary public health for the Stampar School of Public Health in Zagreb.

Considerable work was done at the CDC Technical Development Laboratories for ICA, WHO, PASB, and UNICEF involving studies in the performance specifications for DDT and dieldrin. Contract work was also undertaken for the WHO on aircraft disinsectization and research involving the screening of chemicals as potential new insecticides for WHO-sponsored vector-borne disease control programs.

There were approximately 29 occasions where collaboration of this type was given by the divisions concerned with community health.

(*b*) *Environmental health area.*—Considerable collaboration with international organizations was udertaken by staff personnel in this area by reason of committee and subcommittee membership or affiliation with the International Joint Commission, Pan American Sanitary Bureau-World Health Organization, Food and Agriculture Organization, International Boundary and Water Commission and the United Nations Water Resources Policy Committee.

Some of these international organizations received consultative services on a continuing basis. Examples of such collaboration were: (1) Consultation on water supply problems in Jordan; (2) consultant services to WHO on the standardization of nomenclature and instrumentation in the field of air pollution; (3) establishment of an information center on occupational health and safety with ILO; (4) advisory services by SEC to the French Line on the construction and inspection of the SS *France* and the SS *Leonardo da Vinci* for the Italian Line; and (5) consultant services to the Ministry of Health, Jamaica, for the drafting of a clean air bill for submission to the Jamaican Parliament; (6) four medical officers were detailed to the Atomic Bomb Casualty Commission in Japan and two sanitarians to Antarctica.

Similar services were performed by divisions within the area of environmental health in some 28 instances during 1960.

3. *Participation in international conferences, congresses, and seminars*

Invitations to participate in all manner of international meetings continue to be received. Most of these are genuine scientific sessions and invited Bureau staff should continue to participate within the limits of their competence and resources. However, the urge to organize and to hold international meetings is almost as uncontrolled a virus as that which infects those who studiously wangle invitations and those who, in arranging such programs, "must have a U.S. panel member." No certain preventive for either of these contagions is known; both are, however, worthy of caution and scrutiny.

(*a*) *Community health area.*—Approximately 20 international conferences, congresses, and seminars were attended by representatives of the divisions concerned with community health with varying degrees of directive and technical participation.

(*b*) *Environmental health area.*—Representatives of the divisions concerned with environmental health attended nine international conferences, congresses, and seminars.

4. *Interchange of technical information*

This is a broad and exceedingly diffuse category of activity, ranging from answering a single, isolated foreign letter to a planned organized and continuing exchange of scientific and technical information. Every division received requests from abroad for reprints, for answers to technical questions, for the loan of data or films, for the exchange of sera, biological materials. All of this is international in a technical sense, yet much of it is casual, unique, or "one time," while other exchanges are of a more permanent and continuing nature.

(*a*) *Community health area.*—The exchange of technical information has been effected through staff travel abroad, cooperative projects, correspondence, the dissemination of reprints and publications, films, exhibit material and laboratory materials, and the presentation of papers and lectures by representatives attending international meetings.

The interchange of information has been largely by correspondence in the Divisions of Chronic Disease, Accident Prevention, and Hospital and Medical Facilities. The Arctic Health Center has engaged in cooperative research projects with institutions or individuals in Denmark, England, Finland, France, Germany, Japan, and Canada.

The Division of Community Health Practice has had staff members attend five national conferences to present views of the special needs and requirements of foreign students and visitors.

Considerable diagnostic material and sera have been furnished foreign countries by CDC. A staff member of the Tuberculosis Branch exchanged views with officials in Copenhagen regarding the Danish Tuberculosis Index and continuation of cooperative work for the eradication of tuberculosis. Likewise, a staff member of the Division of Chronic Diseases visited 11 health and gerontological institutions in Norway, Sweden, Denmark, and Germany to study programs for the health of the aged.

A representative of the Division of Nursing visited Denmark, Germany, Austria, and Great Britain to study nursing services in hospitals and health departments.

CDC sold over 100 films to WHO for 5 countries, over 100 to ICA to 6 countries, and loaned nearly 350 films to 16 countries.

(*b*) *Environmental health area.*—These same techniques of facilitating the exchange of technical information have been employed by the environmental health area. The Division of Water Supply and Pollution Control replied to 76 foreign requests for technical information, and the Division of Air Pollution estimates that a total of 1 man-year was involved in the collective handling of the exchange of such technical information. The Division of Occupational Health had a heavy interchange of correspondence which included requests for publications and technical material numbering over 200 from approximately 30 different countries.

Under a bilateral agreement between the United States and Canada, the Division of Engineering Services, representing State-Public Health Service program for certification of interstate shellfish shippers, participated in a number of conferences with counterpart Canadian officials. Japan, too, has a strong official interest in the development of a shellfish sanitation agreement with the United States and this interest required numerous conferences with the Department of State and the Embassy of Japan. Subsequently, the Government of Japan requested that a Public Health Service shellfish sanitation mission be sent to

Japan in April 1961, to review the fish sanitation practices in the Hiroshima Prefecture.

Technical assistance on milk sanitatiton by way of correspondence was provided to Canada, India, England, Belgium, South Africa, New Zealand, British Guiana, and Australia.

The Division of Radiological Health has provided tabulations of the findings of its surveillance network to at least six international organizations and foreign governments.

5. Research or field trials for international agencies or governments

The primary Bureau facility which is undertaking research and field trials of projects with an international significance is the Communicable Disease Center. For many purposes the CDC is the U.S. national center for coordinated international laboratory programs, as in staphylococcus typing, escherichia, salmonella, typhoid typing, influenza, shigella, and research in insecticides. While many of these are wholly or partially financed by other agencies, the scientists involved are in extensive and frequent communication with counterpart personnel overseas.

(*a*) *Community health area.*—The Division of Accident Prevention reported that during 1960 it developed a research project to be carried out in Israel through NIH for fiscal year 1961. The purpose of this project will be to study the relationship between disease impairment and accidental injuries. An attempt will also be made to study the relationship between socioenvironmental factors and accidental injuries.

In 1960, the Division of Dental Public Health and Resources ran a fluoride analysis of 13 water samples for Chile and provided information and checked fluoridation outlines for the Canadian National Fluoridation Committee. Comparative analyses were made of dental caries, periodical and fluorosis data for several countries in which a staff member of the Division made examinations in connection with a WHO assignment.

(*b*) *Environmental health.*—Many of the programs in this area are relatively new and in a formative stage, seeking to mobilize existing information and to formulate long-range plans. Soon, these programs will be seeking to involve foreign authorities and agencies in their work and in research. At the moment only the Division of Occupational Health has firm plans but others, as in Radiological Health and in Air and Water Pollution, except to launch programs internationally within the near future.

INTERNATIONAL ACTIVITIES OF THE NATIONAL LIBRARY OF MEDICINE

A statement to the Subcommittee on Departments of Labor and Health, Education, and Welfare of the Appropriations Committee, U.S. House of Representatives

For over 90 years the NLM has cultivated the international exchange of medical publications in relation to its basic missions of collecting the medical literature of all countries and in all languages, and of preparing medical indexes and bibliographies. As a consequence, the Library enjoys a preeminent international reputation as a world center for medical bibliography. The extent to which the Library is currently involved in programs of international significance is suggested by selected activities grouped under the following categories:

1. Exchange of publications.
2. International use of services.
3. Technical consultations.
4. Exchange of persons.
5. Second International Congress on Medical Librarianship.
6. Translation programs.

1. International exchange of publications

The National Library of Medicine has carried on an international publications exchange program for many years. Under this program, the Library offers its exchange partners all monographic and bibliographic publications of the Public Health Service, as well as the following serial titles:

Bibliography of Medical Reviews.
Index Medicus.
Journal of the National Cancer Institute.
National Library of Medicine Catalog.

Public Health Engineering Abstracts.
Public Health Service Reports.
U.S. National Health Survey.
Vital Statistics of the U.S.
Vital Statistics Reports.

The major title involved in this program is the Index Medicus, which indexes virtually all important American medical journals. About 1,000 foreign institutions now receive the Index Medicus on an exchange basis. These include many within the U.S.S.R. and other Communist bloc countries. (See appendix 1 and 2.)

On behalf of exchange partners in several countries, the Library now purchases American commercial journals, which it sends in return for journals of equivalent value. This program is intended to bring into the Library journals which are otherwise difficult to procure. At the same time, it enables certain dollar-poor foreign institutions to obtain important American medical titles.

The National Library of Medicine attempts to acquire all medical publications, wherever published, and in whatever language they appear. To this end some 189 sources of information about medical publications in some 50-odd countries are searched routinely and medical items listed therein are added to the Library's collections. At present it is estimated that approximately 75 percent of the contents of the Library is in foreign languages.

2. *International use of services*

A. *Loan services.*—The National Library of Medicine services foreign requests for the loan of materials on the same terms as it does domestic. It requires that requests from individuals be channeled through the libraries of their institutions, and performs the service as in international interlibrary loan. It responds to such requests by making photocopies, which it sends by mail in lieu of the original material. In fiscal year 1960 it serviced 13,381 requests from 353 institutions in 61 countries. This is in addition to the 6,166 requests serviced for U.S. oversea installations, and represents approximately 15 percent of the Library's lending activity. This service has been of immense value in supplementing the inadequate resources of the underdeveloped countries.

B. *Reference services.*—The Library's Reference Division services international requests for information by correspondence. Generally speaking, this is a question answering service, and not of the extended search variety. A sampling of 33 letter requests received over the past 6 months shows the following geographic distribution (see appendix 3).

3. *Technical consultations*

Members of the Library staff act internationally as advisers in matters connected with libraries, communication of medical information, and translations of scientific publications. Many requests for such services are answered in writing, but typical examples of advisory services which have been offered in person are: surveys of library situations in Korea and Nigeria; advice on national library problems in Austria; work with the American Memorial Library in Berlin; consultations on international catalog code revision; and work with UNESCO on library standards, with the International Federation of Documentation, the Abstracting Board of the International Council of Scientific Unions, the Pan American Union's Science Cooperation Office, and others. Many requests for information on developing new library buildings are received; recent ones include those from Argentina, Australia, England, Japan, and Lebanon, and were addressed to the Library by both architects and librarians. Individual consultations with visiting foreign physicians, librarians, architects, etc., are frequent.

4. *Exchange of Persons*

The Library does not participate in a formally organized intergovernmental exchange of persons, but does cooperate with other programs, public and private, by accepting trainees and fellows for brief periods. During 1960–61 three individual medical librarians from outside the United States (from New Guinea, Thailand, and Great Britain) were on training assignments of considerable duration in the Library. This is in addition to more than 75 brief visits of foreign delegations and individuals. A recent delegation of Russian librarians spent several hours at the NLM. A staff member is usually one of the members of the Medical Library Association's Committee on International Relations, which arranges for study and travel grants for foreign medical librarians in the United States.

5. *International Congress on Medical Librarianship*

The Library has taken the initiative in arranging for the convening of the Second International Congress on Medical Librarianship in Washington in June 1963, for which the Medical Library Association will act as host. Some 300 foreign medical librarians are expected to attend. The permanent Secretariat for the Congress has been set up at the NLM, and such Committees as those on Financing, Arrangements, Programs, Publications, etc., contain a number of Library staff members.

5. *Translation programs*

A. *Russian scientific translation program.*—Communication of the findings of medical scientists throughout the world to American physicians and research workers is furthered by the Library's translations programs. By transfer from the National Institutes of Health of $412,000 in fiscal year 1962, the NLM published and distributed cover-to-cover translations of some 9 Russian biomedical journals and underwrites the translations and publications of significant Russian monographs. It also offers help in the compilation and publication of secondary tools, such as Abstracts of Soviet Medicine, reviews of Soviet biomedical work published in regular American journals, compilations of data (such as directories and dictionaries) which are important for American medicine. The Library intends to extend translation activities to other important literature published in the more obscure languages.

B. *Public Law 480.*—The Library is among the Government agencies which selects, translates, publishes, and distributes translations from rarer languages using the foreign currencies accruing to the United States under Public Law 480. In this, the National Science Foundation acts as agent for the program. Translations have been made from Russian, Polish, and Yugoslavian. Simultaneous publication of English editions of Polish journals have also been arranged, as well as improved abstracting of Polish medical literature and review papers.

In summary, the exchange of publications, the indexing activity, and the worldwide reputation enjoyed by the Library have resulted in a variety of activities related to international communication in the medical sciences. These have increased significantly in recent years, and indications are that service demands will increase in the future.

APPENDIX I. EXCHANGE MAILING LIST OF THE NATIONAL LIBRARY OF MEDICINE

As of January 1961, there were 1,062 foreign addresses on the exchange mailing list to which the Library sends 1,115 exchange subscriptions to its publications:

Index medicus	918
Bibliography of Medical Reviews	87
NLM Catalog	14
Public Health Reports	70
National Health Series—PHS	2
Journal of the National Cancer Institute	2
Vital Statistics	8
Engineering Abstracts	1
Monographic lists	13

APPENDIX 2. ADDRESSES ON THE EXCHANGE MAILING LIST OF THE NLM

Country	*Total*
Africa	14
Arabia	1
Argentina	49
Australia	13
Austria	6
Belgium	13
Bolivia	1
Brazil	64
British West Indies	2
Bulgaria	6
Canada	12
Ceylon	1
Chile	14
Colombia	14
Costa Rica	3
Cuba	26
Czechoslovakia	34
Denmark	22
Dominican Republic	4
Ecuador	3
Eire	2
England	45
Finland	11
Formosa	1
France	80
French Guiana	1
Germany	30
Greece	3
Guatemala	4
Honduras	1
Hungary	15
Iceland	1
India	18
Indonesia	5
Iran	2
Irag	3
Israel	13
Italy	92
Japan	95
Kenya	1
Korea	3
Lebanon	5
Malaya	1
Mexico	37
Netherlands	12
New Zealand	5
North Ireland	1
Norway	7
Pakistan	4
Panama	3
Peru	16
Philippines	5
Poland	27
Portugal	15
Puerto Rico	2
Rumania	11
El Salvador	3
Scotland	7
South Rhodesia	1
Spain	57
Sumatra	1
Sweden	26
Switzerland	22
Thailand	10
Tunisia	1
Turkey	12
Uruguay	14
U.A.R.	4
United States	46
U.S.S.R.	38
Venezuela	11
Wales	2
Yugoslavia	29
Total	1,163

Appendix 3. Requests From Foreign Countries, Reference Division

(6 months, January–July 1960)

- Africa, South: Johannesburg
- Australia:
  - Bathurst
  - Melbourne
- Belgium: Liege
- Canada:
  - Montreal
  - Regina, Saskatchewan
  - Toronto
  - London
  - Kingston
- Central America:
  - Guatemala City
  - Panama
- Egypt: Alexandria
- England: London
- Finland: Helsinki
- France: Paris
- Germany: Bad Homburg
- Greece: Athens
- Hungary: Budapest
- India: Calcutta
- Israel: Jerusalem
- Italy:
  - Rome
  - Milan
  - Bologna
- Mexico:
  - Monterrey
  - Morales
- Pakistan, West: Multan City
- Poland: Warsaw
- Scotland: Edinburgh
- South America:
  - Argentina: Buenos Aires
  - Brazil:
    - Bahia
    - Belo Horizonte
  - Colombia:
    - Barranquilla
    - Bogotá
    - Cali
  - Paraguay: Asunción
- Spain: Redonela
- U.S.S.R.: Moscow

Special Report: The Impact of NIH International Programs Abroad

Although a systematic and thorough appraisal of all our foreign operations has only been recently initiated, certain preliminary conclusions seem warranted. We have considerable evidence that the research being supported is generally of high quality. For this reason, we have concluded that the individual projects are accomplishing effectively the objectives of the NIH. These foreign activities allow us to bring to bear the talents and skills of highly competent foreign scientists on the health problems of the United States. Thus, NIH is now taking advantage of a vital resource which otherwise would not be available.

On the other hand, we recognize that because of the rapid growth of the program, its aggregate effects may in certain countries influence the development and structure of medical science. Usually these secondary effects are advantageous in that they strengthen the research potential and productivity of the recipient country. However, we have recently had experiences which show us that under certain conditions our actions may innocently interfere with the orderly development of the programs of foreign institutions or even foreign countries. Thus, we perceive the need to assess continuously both the primary and secondary effects of our actions. It is recognized that while NIH programs are not designed primarily for the advancement of our foreign policy, they must be sensitive to the needs for maintaining satisfactory relationships with foreign scientists, foreign institutions, and foreign governments.

Our attention has only recently been focused on the secondary effects of our oversea programs because until very recently our foreign activities in the aggregate did not constitute a significant part of the total research support structure of any country. Because of the increasing feasibility and desirability of international cooperation in medical research, our foreign activities have been increasing rapidly. They still represent only a small part of our total effort, for example, only about 4 percent of our grants are awarded in foreign countries. Nevertheless, in fiscal year 1961, 506 grants were made to foreign investigators and the total support amounted to $8.2 million. Even though we have been very selective in our awards during fiscal year 1962, it is expected that about $12 million will be awarded to foreign investigators. These scientists are doing important work which we believe will advance the status of the health sciences in the United States as well as in the country of the investigator. In several countries (Canada, the United Kingdom, Israel, Sweden, and Japan) our support now ranges between $1 and $2 million yearly.

One of the important functions of the new Office of International Research and its oversea representatives will be to provide a continuous appraisal of both the primary and the secondary effects of our activities. Attempts will be made to assure that the NIH contribution to research overseas is provided in such a way as to insure that it will add to or stimulate local support rather than replace the research investment of the foreign country.

The NIH oversea activities have been undertaken only in instances where such projects were in the interest of our domestic objectives. Nevertheless, our willingness to cooperate with and support other countries in a mutual effort to improve the health of their people and our people furnishes an excellent opportunity for collaborative research. These programs will increase our knowledge only if they are scientifically productive and only if they are supported and respected by the leaders in foreign medical science. For this reason, we are establishing liaison with appropriate representatives in those foreign countries where our activities might affect significantly the status of medical science in that country. In consultation with foreign scientific groups, we are studying the status and goals of the health-science programs in these countries so that we may be sure that our own projects supplement or complement their programs. In meetings during the past year with the leaders in medical science in Sweden, the United Kingdom, France, Israel, and Canada, we have learned that our programs have resulted in significantly mutual advantages. These discussions identified ways in which the future programs of NIH could be coordinated more effectively with the total research efforts of these foreign countries.

We have recently assigned a full-time representative to the World Health Organization in order that we may have available to us the vast amount of information in that organization in constructing our own international programs. We are using a variety of other mechanisms for studying the relationship between our own foreign programs and those of other American and foreign organizations. For example, we are cooperating with the American Institute of Biological Sciences in their attempts to compile information concerning research resources abroad. Close relationships have been established with the Office of the Science Adviser of the Department of State.

On December 15, official representation was established in Paris, France, through the assignment of two NIH employees who have been accommodated and space provided by the Embassy.

Continuous on-the-scene appraisal of our programs will permit us to choose selectively those activities best calculated to advance our mission in the most effective and economical manner. In addition, administrative advice and assistance will be provided to grantees and to the various Institutes of the National Institutes of Health. The science-administrators appointed to these positions will also have the responsibility of negotiating research agreements in connection with our special foreign currency program in those countries most easily accessible to their base of operations.

Since the primary objective of the NIH international program is to advance the status of the health sciences in the United States, our grants are most frequently made in countries where adequate research resources are available and where original and productive ideas arise. This means that NIH relationships have been most extensive with the countries which are more advanced in the medical sciences, such as Canada, Japan, Australia, Israel, and the Western European countries. The fact that we do not frequently support scientists in newly emerging countries also recognizes that their limited scientific manpower must not be diverted from the high-priority problems of that country by our support of projects of interest to us. However, NIH does have programs in emerging countries which are supported with U.S.-owned foreign currencies. We have been careful to develop these programs in such a way as to assure that (1) the projects supported were of interest to both America and the coöperating country and (2) the project involved collaboration between foreign investigators and U.S. scientists. In this way, we assured that the project would not only achieve its primary objective but, in addition, the collaboration would tend to elevate the level of science in the cooperating country.

The international centers for medical research and training which are being established through grants to American universities have been carefully studied in respect to their impact on the medical environment in which they are located. Suffice it to say that they will strengthen the medical research potential in the foreign countries in which they are located. However, we perceive the need for continuous appraisals to make certain that the participation of foreign scientists in the work of these centers does not significantly reduce the number of medical scientists who are available for other important work of the country, such as teaching and medical services. For this reason, we plan to evaluate not only the research accomplishments of these centers but also their effects on the medical environment in which they operate.

Thus it is becoming increasingly apparent that the development of highly effective international programs will require a careful continuing appraisal of the relationship between our activities and those sponsored by and planned by the foreign scientific community. Our experience to date suggests that by making such an effort we can be sure that our international research activities accomplish not only our primary goals but also that they strengthen the medical research potential of the cooperating countries.

NATIONAL INSTITUTES OF HEALTH

TABLE I.—*Principal international activities, by program, fiscal year 1961 (excluding special foreign currency program)*

Program	*Amount awarded*
Total	[1] $12, 133, 684
Research grants	[1] 8, 374, 570
Research contracts	182, 776
U.S. fellows and trainees abroad	1, 780, 409
International research fellows	675, 390
Visiting scientists program	869, 194
Training grants	251, 345

[1] Excludes research grants to PAHO totaling $568,021.

Source: Office of International Research, OD, NIH, Feb. 16, 1962.

Table II.—*Principal international activities, by program and country, fiscal year 1961 (excludes special foreign currency program)*

Country	Total awards		Research grants and contracts [1]		U.S. fellows and trainees abroad [2]		International research fellows [3]		Visiting scientists	
	Number	Amount	Number	Amount	Number	Amount	Number	Amount	Number	Amount
World total	1,061	$12,701,705	562	$9,125,367	258	$2,031,754	92	$675,390	149	$869,194
Western Hemisphere, total	183	2,638,295	138	2,186,473	15	229,024	18	123,835	12	98,963
Argentina	11	70,074	8	54,795			2	13,613	1	1,666
Brazil	15	165,931	9	103,495	1	32,400	4	24,036	1	6,000
Canada	99	1,442,710	80	1,198,556	12	182,662			7	61,492
Chile	9	73,035	8	64,935			1	8,100		
Colombia	6	40,922	2	8,703			2	12,409	2	19,810
Costa Rica	1	9,545	1	9,545						
El Salvador	1	31,604	1	31,604						
Guatemala	1	7,000	1	7,000						
Jamaica	2	20,515	1	10,520					1	9,995
Mexico	15	306,683	11	278,757	1	7,100	3	20,826		
Panama [4]	5	141,754	5	141,754						
Peru	11	257,069	7	230,544	1	6,862	3	19,663		
Uruguay	7	71,453	4	46,265			3	25,188		
Europe, total	606	6,208,526	254	3,770,217	231	1,715,213	43	306,537	78	416,559
Austria	14	81,169	4	29,900	4	14,115	1	7,384	5	29,770
Belgium	19	151,892	12	113,953	1	3,000	4	28,442	2	6,497
Denmark	40	287,951	17	134,621	17	114,861	4	31,169	2	7,300
Finland	18	161,901	14	135,162	1	6,727	2	12,512	1	7,500
France	63	620,078	23	339,669	33	242,531	4	28,170	3	9.708
Germany, Federal Republic of	34	216,804	7	53,974	13	80,705	4	28,319	10	53,806
Greece	2	5,600	2	5,600						
Iceland	1	10,528	1	10,528						
Ireland	8	53,457	6	45,878					2	7,579
Italy	44	524,435	25	373,893	9	74,136	4	28,659	6	47,747
Netherlands	20	308,448	16	272,675	2	14,773	1	8,230	1	12,770
Norway	11	115,114	7	94,830	1	6,053	2	13,898	1	333
Portugal	3	50,378	3	50,378						
Spain	7	52,170	2	18,900			4	26,685	1	6,585
Sweden	97	1,436,096	50	1,011,445	35	340,229	4	33,848	8	50,574
Switzerland	30	198,905	6	47,030	16	112,239	3	18,297	5	21,339
United Kingdom	190	1,900,184	58	1,026,781	99	705,844	5	34,628	28	132,931
Yugoslavia	2	11,296	1	5,000			1	6,296		
Stateless	3	22,120							3	22,120

Africa, total	19	291, 311	14	258, 654			3	24, 517	2	8, 140
Congo (Léopoldville)	2	41, 751	2	41, 751						
South Africa, Republic of	16	225, 525	11	192, 868			3	24, 517	2	8, 140
Tanganyika	1	24, 035	1	24, 035						
Middle East, total	83	973, 844	62	837, 592	2	13, 391	8	58, 720	11	64, 141
Iran	4	29, 318					4	29, 318		
Israel	63	776, 368	49	687, 699	2	13, 391	4	29, 402	8	45, 876
Lebanon	13	146, 983	12	135, 543					1	11, 440
Turkey	3	21, 175	1	14, 350					2	6, 825
South Asia and Far East, total	151	1, 508, 012	75	990, 714	10	74, 126	20	161, 781	46	281, 391
Pakistan	2	30, 600	1	24, 000					1	6, 600
India	21	143, 496	6	47, 247	1	6, 855	3	25, 070	11	64, 324
Ceylon	1	6, 222					1	6, 222		
Japan	74	805, 040	44	617, 624	3	22, 051	4	31, 263	23	134, 102
Korea	3	29, 718	3	29, 718						
Hong Kong	2	24, 795	2	24, 795						
Taiwan	3	26, 855							3	26, 855
Thailand	6	42, 478	3	15, 645			3	26, 833		
Philippines	5	28, 543	2	3, 450			3	25, 093		
Indonesia	1	12, 210							1	12, 210
Australia	25	307, 143	11	210, 047	6	45, 220	3	23, 146	5	28, 730
New Zealand	8	50, 912	3	18, 188			3	24, 154	2	8, 570
International organizations, total	19	1, 081, 717	19	1, 081, 717						
World Health Organization	2	282, 940	2	282, 940						
Pan American Health Organization	12	568, 021	12	568, 021						
INCAP	1	53, 646	1	53, 646						
World Federation of Neurology	3	170, 190	3	170, 190						
South Pacific Commission	1	6, 920	1	6, 920						

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[1] Includes returning fellow grants, supply grants to American fellows abroad, and 3 research contracts totaling $182,776.

[2] Includes 34 traineeships totaling $268,165 and 7 training grants to institutions in Brazil, Canada, and Sweden totaling $251,345.

[3] In addition there were approximately 1,100 foreign trainees receiving stipends under training grants to institutions in the United States.

[4] Includes grants to Gorgas Memorial Institute of Tropical and Preventive Medicine, Inc.

Source: Office of International Research, OD, NIH, Feb. 15, 1952.

Special Report: International Centers for Medical Research and Training

The program for international centers for medical research and training (ICMRT) was established by the National Institutes of Health in November 1960 to advance a major objective of the International Health Research Act of 1960 (Public Law 86–610). This objective is the broadening of collaborative research and research training between United States and foreign institutions and investigators.

The ICMRT instrumentality represents a new departure in NIH programing, assuring greater continuity and stability in projects covering specific areas of reciprocal and collaborative research on an international basis. A major advantage of this program is that it provides opportunities for highly competent U.S. scientists to exploit unusual research opportunities abroad and to obtain valuable experience in a foreign setting without losing their valuable university connections. Applications for ICMRT grants are received by NIH from American universities and are subject to regular scientific and program review and approval procedures. With grant approval the universities establish centers within their own organizations which provide a stable professional framework within which medical research projects, planning, and training may be conducted. At the same time the universities negotiate with foreign institutions to establish affiliate centers which will have the necessary research facilities and scientific and technical competence to support the research programs agreed upon. These collaborative research and training centers abroad offer both United States and host country investigators environmental, ethnic, and medical conditions unavailable in the United States. Furthermore, the research training provided in connection with these activities will increase the number of individuals competent in this important area. The institutions at present involved, and their respective programs are as follows:

> University of California Schools of Medicine and Public Health, and the Hooper Foundation in collaboration with the Institute for Medical Research, Kuala Lumpur, Malaya.
>
> The research program is initially centered on arthropodborne virus diseases, mycology, endocrinology, parasitology, and entomology with training emphasis in the fields of endocrinology-metabolism, biochemistry-immunology, microbiology-virology, geographic pathology, and medical ecology.
>
> Johns Hopkins University School of Hygiene and Public Health and Department of Medicine in collaboration with the School of Tropical Medicine, Calcutta.
>
> The research program has primary interests directed to the fields of pathobiology and general medicine, with emphasis on hematologic, infectious, neoplastic, and nutritional diseases.
>
> University of Maryland School of Medicine in collaboration with the Institute of Hygiene, Lahore, West Pakistan, and other cooperating institutions in the area.
>
> The general research program has emphasis centered initially on fevers of unknown origin, gastrointestinal infections, parasitology, pulmonary disorders, nutrition, pediatrics, preventive medicine, and epidemiology.
>
> Tulane University School of Medicine in collaboration with the Universidad del Valle, Cali, Colombia.
>
> The research program is directed primarily to studies on fevers of unknown origin, enterobacteria and shigella, tuberculosis in children, mycotic diseases, general virology, nutrition, cardiovascular disease, hematology, cysticercosis, demography, sociology, and maternal and child health.
>
> Louisiana State University (New Orleans).
>
> The faculty of the school of medicine is pursuing studies in Central America.
>
> The overall research approach will include studies in virology, bacteriology, parasitology, mycology, metabolism, biometry, and pathology of chronic diseases, such as cancer and vascular diseases.

Administration of the program

In fiscal year 1962 the funds for support of the international centers and other special international programs were supplied by appropriations to the Institutes (except Dental Institute) and the Division of General Medical Sciences. The Institutes then allocated funds to the National Institute of Allergy and Infectious Diseases for the support of the ICMRT program. In fiscal year 1963 the administration of the ICMRT program will be handled centrally by the new Office of International Research through a requested appropriation to the fund entitled "General Research and Services" which supports the Division of General Medical Sciences. The Advisory Committee for the ICMRT program will continue to operate as before except that it will now report to the National Advisory Health Council instead of the Advisory Council of the Institute of Allergy and Infectious Diseases.

Plans

The most recent grant was to Louisiana State University in June of 1961. Following this, a study was initiated to review the progress of each of the centers. After a preliminary appraisal, it was decided to limit the number of centers to six in 1962 in order to allow more time for the evaluation of these administratively complex operations. Furthermore, NIH wished to accumulate more data in order to determine the optimum balance between our investment in these centralized oversea units on the one hand, and our support of individual international projects on the other hand. Thus, in the latter part of fiscal year 1962 or early in fiscal year 1963 only one additional grant (to an American university for the development of a center in Africa) is planned.

In fiscal year 1963 no increase in support for the ICMRT program is being requested. The same amount ($3.19 million) which was allocated from the special international appropriation in fiscal year 1962 will provide adequate support for the continuation of the present five centers. In addition, these funds will permit the development of one new center and the appropriation will provide for modest strengthening of some of the present centers.

INTERNATIONAL RESEARCH ACTIVITIES OF THE NATIONAL INSTITUTES OF HEALTH, FISCAL YEAR 1961

GENERAL

The fiscal year 1961 review of the status of the international activities of the National Institutes of Health indicates substantial progress and growth have taken place. Two new programs of particular significance have been launched in addition to the further development of programs continued from the previous year. These two programs are the international centers for medical research and training and the special foreign currency program. Altogether obligation for NIH activities outside the United States (exclusive of the foreign currency program) totaled $12.2 million in fiscal year 1961 in contrast to a total of $7.1 million obligated for similar purposes in fiscal year 1960.

In the departmental appropriation (fiscal year 1961), a sum of $5 million was designated for the development of international activities under the Surgeon General's authorities provided by Public Law 86–610.

Approximately $2.4 million of this amount has been allocated for the development of a series of international centers for medical research and training in accordance with the direction given in the Senate discussion of this particular amount. The remainder of this amount ($2.6 million) was utilized by the several Institutes and the Division of General Medical Sciences for the support of carefully planned and purposely developed research projects involving foreign investigators and institutions and directed toward research and research training objectives of key significance to these programs. A summary of the status of these activities follows.

I. Regular research grants and contracts

Research grants and contracts for the support of foreign investigators working on problems relevant to the general and categorical programs of NIH amounted to $5,008,016 for a total of 303 such awards in fiscal year 1960. Comparable figures for foreign research grants and contracts in fiscal year 1961 reveal 506 awards made, totaling approximately $8.4 million (see table I and II attached).

At current levels of support, the NIH program constitutes one of the largest U.S. Federal agency programs of support for research in foreign countries. It is expected that the volume of research support for foreign investigators will continue to increase during fiscal year 1962. Approximately $10 million have been committed for foreign grants so far this year as a result of June council actions. With the application of new criteria, it is expected that $13 million will be awarded by the end of the fiscal year.

The basic rationale underlying this growing expenditure for the support of medical research in foreign countries is that there is specific reason to believe that the work supported will significantly contribute to the achievement of the program objectives of the National Institutes of Health. These program objectives, in the first place, relate to progress in understanding and controlling major categorical diseases of national significance and, in the second place, to strengthening and advancing the medical and health sciences generally. The objective of the NIH in providing grant support for research carried out by foreign investigators and institutions is to secure the benefits to its program objectives of the superior scientific capability or exceptional research opportunities, which may be presented by such individuals or facilities and their scientific endeavors.

II. Training support

During fiscal year 1960, a total of $2.1 million was expended by NIH for research training activities on an international basis. Comparable expenditures in fiscal year 1961 were $2.7 million. Plans for 1962 based on present budgetary determinations contemplate only a modest increase in these activities.

The NIH international fellowships program is a major element of these oversea training activities. This program initiated in 1958, provides for supporting the study of outstanding young medical scientists from 34 countries for periods up to 2 years in U.S. universities and research institutions. During fiscal year 1961, 90 such awards were made for a total amount of $700,000.

Support of U.S. scientists studying abroad under the sponsorship of outstanding research scientists is a program of dominate importance in the array of NIH international activities. In the past 14 years, about 650 U.S. scientists have had the benefit of such training and research experience in the laboratories and universities of some 40 countries.

During fiscal year 1960, 191 U.S. fellows were supported by NIH training in 28 foreign countries at a cost of $1.2 million. In fiscal year 1961, this program supported a total of 217 U.S. fellows at a level of $1.5 million.

Other NIH oversea training activities included a small number (34) of trainees studying abroad in clinical areas in the amount of $270,000 and an estimated $250,000 for 7 training grants to foreign institutions.

III. Cooperation with WHO and PAHO

During the past year, NIH has worked out agreements with the World Health Organization and the Pan American Health Organization covering the manner in which NIH will cooperate with these organizations in the conduct of research activities sponsored by them. Basically, these agreements provide for preliminary planning of international research programs on a collaborative basis and set forth the terms and conditions under which NIH will support the special research programs of these agencies and the research projects of paticipating investigators and institutions. Three large research grants for special research projects have been made to the WHO thus far in fiscal year 1961.

> (*a*) A grant for the worldwide study of insecticide resistance and for control of insect disease vectors—in the amount of $204,000 for the first year, with support promised for 4 years.
>
> (*b*) A grant for the study of bilharziasis and research into molluscicides chemotherapeutics, and diagnostic methods related thereto, in the amount of $78,941 for the first year, with 4 additional years of support promised.
>
> (*c*) A third grant application providing for the development of global studies relating to the epidemiology of virus diseases has been approved in the amount of $188,000.

Applications for support of other comparable large-scale international research programs are expected from WHO. In its March meeting, the National Advisory Health Council recommended the approval of a grant of $120,750 to the Pan American Health Organization through the National Institutes of Health for the purpose of planning, developing, and organizing an international health and medical research program for the Americas under the direction of the Pan American Health Organization. This award was paid with approval by the President.

IV. International centers for medical research and training

This program envisages the development of a series of international centers for medical research and training based on U.S. universities with an oversea extension in the form of a research laboratory and training facility.

These centers will provide field experience and research opportunities for U.S. postgraduate physicians and scientists and encourage physicians and other health personnel of collaborating non-U.S. institutions to participate in the development of health research and training resources in their national environment.

Each of these centers will consist of (1) a professional, school-based organizational entity which would provide a stable, continuing framework in which programs of medical research, research planning and research training may be conducted in this country, and which is associated with (2) a research and training establishment overseas where these activities may be pursued under environmental, ethnic, and medical conditions which do not prevail in the United States.

Applications of five American universities to sponsor international centers for medical research and training had been approved for payment. These American universities and their cooperating institutions overseas are as follows:

University of California	Institute for Medical Research, Kuala Lumpur, Malaya.
Tulane University	Universidad del Valle, Cali, Colombia.
Johns Hopkins University	Calcutta School of Tropical Medicine, Calcutta, India.
Louisiana State University	University of Costa Rica, San Jose, Costa Rica.
University of Maryland	Medical College of Lahore, East Pakistan.

Each of the American universities has requested research and training funds ranging from $100,000 to $500,000 per year for each year of a 5-year period. An ad hoc committee on international centers for medical research and training reviewed and approved these grant requests, and the National Advisory Allergy and Infectious Diseases Council concurred, recommending to the Surgeon General that these grants be paid.

Of the $5 million appropriated for fiscal year 1961 to support the international centers for medical research and training, $2,269,971 has been transferred from the several categorical appropriations concerned to the National Institute of Allergy and Infectious Diseases which serves as the central point for administering this program. The remainder of the $5 million was used by the Institutes and DGMS for special foreign research programs in the regular research grants area.

V. Special foreign currency program

The use abroad of U.S.-owned foreign currencies (Public Law 480) permits the extension overseas of NIH intramural research programs. Such programs, of mutual concern to the NIH and to foreign institutions and investigators, are carried out through development of collaborative research agreements with scientists and government agencies of other countries.

Objectives.—Research under this program is directed primarily toward solution of medical problems of particular importance to the United States and other countries.

The availability of qualified investigators or the existence of a unique research situation govern the choice of the host countries to be designated for the projects.

Provision is included in most projects for training of younger scientists and supporting technical personnel, to augment local scientific manpower and contribute to the scientific development of the country involved.

Types of projects.—Medical research may require further study or confirmation of U.S. findings in other countries where similar diseases are prevalent. The projects are aimed at solving characteristic health problems of both countries. They, for the most part, include problems of infectious diseases, nutritional problems, and those involving large population groups where recent developments in epidemiology can permit the delineation of differences in population characteristics, suggesting new clues to the etiology of certain diseases. Some of the projects contemplated, of global concern, are in the field of virus diseases. Some countries, because of the differences in attack rates of the same diseases, offer unusual opportunities for comparative studies in different geographical regions.

Studies will also be continued on those diseases which still persist in certain areas, offering a threat to those entering them, or which can spread to other areas. The search for new biological and botanical sources of pharmaceutical products useful in the fight against disease also will be expanded.

Policy.—Selection of the research to be undertaken receives the same careful review and scientific appraisal as is currently given all research projects in the intramural research programs of the individual institutes. Technical advice and scientific opinions are also obtained from competent scientists and scientific bodies within the host countries.

No project will be supported contrary to the wishes of the foreign country's official body responsible for the overall planning and coordination of research. Such groups will continue to be used to the maximum extent possible, to assist in the planning and organization of projects within each country. Close coordination with the research programs of the World Health Organization will be maintained.

The funds are intended to support only additive research and will not be used to substitute for the support which each country would normally give to its research efforts. Likewise, these funds will not be used to support projects which would normally be eligible for support from dollar appropriations.

Public Law 480 funds for medical research were appropriated in 1961 ($3.7 million) and 1962 ($5.1 million). Funds provided in the fiscal year 1962 appropriation to support this program are not yet available for obligation and expenditure, as the formal apportionment request has not yet been returned to us through budget channels.

The negotiation of individual agreements supported from fiscal year 1961 funds has proceeded rather slowly. Scientific and administrative NIH personnel have traveled to the countries where research is to be conducted. Preliminary scientific agreements have been reached, but the administrative followup to obtain official signatures has been slow. It is believed that it would be appropriate at this point to allow ourselves a period to evaluate the effects of this program on the scientific communities of the host countries before additional funds are requested.

Because of the difficulties involved in the administration of this program, the NIH now is considering a new approach to the utilization of funds to be provided for future years, i.e., that collaborative research programs be negotiated in general terms with the appropriate scientific bodies of the governments in host countries. These national bodies will then develop specific program proposals which they will submit to the NIH. The proposals will then be reviewed. If acceptable, formal documents will be prepared and official signatures obtained in order to release the funds. The NIH Advisory Committee on International Research has endorsed this proposal.

National Institutes of Health special foreign currency program—funds appropriated, fiscal years 1961 and 1962

Country	Appropriated, 1961	Appropriated, 1962	Total appropriated
Brazil	$160,000		$160,000
Burma		$479,000	479,000
Egypt	287,000	945,000	1,232,000
India	1,732,000	1,114,000	2,846,000
Indonesia	88,000		88,000
Israel	240,000	613,000	853,000
Pakistan	685,000	622,000	1,307,000
Poland	115,000	1,086,000	1,201,000
Yugoslavia	400,000	200,000	600,000
Totals	3,707,000	5,059,000	8,766,000

Status of funds—Fiscal year 1961 funds

Country	Available fiscal year 1961 funds	Total obligations, Jan. 10, 1962	Commitments	Balance
Brazil	$160,000	$79,600	$8,000	(1 2)
Egypt	287,000	162,000	63,000	$62,000
India	1,732,000	890,995	470,500	370,500
Indonesia	88,000	------------	88,000	------------
Israel	240,000	206,000	------------	34,000
Pakistan	685,000	300,656	360,000	(1)
Poland	115,000	2,100	112,000	(1)
Yugoslavia	400,000	600	396,000	(1)

[1] Negligible.

[2] Brazilian currency has undergone a sharp reduction of value. This accounts for the difference between amount available and obligations.

National Institutes of Health special foreign currency program—Status of 1961 funds as of Jan. 10, 1962

[In U.S. dollars]

	1961 appropriation	Obligations	Commitments	Balance [1]
Brazil	$160,000	$78,200	------------	[2] $81,800
Egypt	287,000	162,700	$59,100	65,200
India	1,732,000	885,980	507,500	338,520
Indonesia	88,000	------------	------------	88,000
Israel	240,000	206,030	------------	33,970
Pakistan	685,000	290,800	388,000	6,200
Poland	115,000	2,100	112,000	900
Yugoslavia	400,000	600	389,000	10,400
Total	3,707,000	1,626,410	1,455,600	624,990

[1] Represents funds for firm development of existing proposals and for expenses of scientific collaboration on existing projects.

[2] U.S. dollar balance awaiting allocation of additional cruzeiros.

National Institutes of Health special foreign currency program—Funds appropriated, fiscal years 1961 and 1962

Country	Appropriated, 1961	Appropriated, 1962	Total appropriated
Brazil	$160,000	------------	$160,000
Burma	------------	$479,000	479,000
Egypt	287,000	945,000	1,232,000
India	1,732,000	1,114,000	2,846,000
Indonesia	88,000	------------	88,000
Israel	240,000	613,000	853,000
Pakistan	685,000	622,000	1,307,000
Poland	115,000	1,086,000	1,201,000
Yugoslavia	400,000	200,000	600,000
Total	3,707,000	5,059,000	8,766,000

SPECIAL REPORT: NIH-SEATO CHOLERA RESEARCH PROGRAM

The Pakistan-SEATO Cholera Research Laboratory in Dacca, established by NIH under an agreement with the International Cooperation Administration, has developed considerably during the past year, both as regards its staff and its scientific accomplishments.

Dr. Fred L. Soper, one of the world's renowned public health experts, recently retired from the directorship of the Pan American Sanitary Bureau, assumed the directorship of the Cholera Research Laboratory in February 1961. Through his efforts, the administrative procedures and the administrative staff have been put on a working basis.

A new section on clinical research has been established with Dr. Robert S. Gordon, one of the senior investigators of NIH, in charge. Assisting him is another USPHS officer, Dr. O. Ross McIntyre. These two have created a research laboratory for biochemical and physiological investigations and are in the final stages of establishing a 20-bed ward in which they will study cholera cases in the acute phase of the disease.

A functioning water analysis laboratory, with equipment and trained Pakistani technicians, was added to the CRL through the good offices of the Agency for International Development (AID) Mission to Pakistan when the Parsons Co. completed its survey of water resources in East Pakistan for AID. This laboratory has already proved to be a considerable asset in the field studies of cholera.

Dr. K. A. Monsur, the chief of the bacteriology section of the CRL, has developed improved techniques for the diagnostic isolation of *Vibrio cholerae*, the cause of the disease. Of greatest interest is his maintenance media used in transporting specimens. The usually fragile vibrio survives in this media, even when held for weeks. The availability of such a new tool has enabled Dr. Soper and the CRL to formulate a plan for the continuing surveillance of cholera in East Pakistan. Thus, samples of the media and swabs for obtaining rectal specimens will be sent to the villages and placed in the care of the schoolteacher. When any diarrheal disease appears in the village, specimens will be obtained by the teacher and sent by ordinary mail to the CRL for bacteriological diagnostic studies.

Increasing interest in the CRL in Dacca has been demonstrated by other governments. For instance, the United Kingdom has contributed to the CRL laboratory equipment in the amount of £10,000.

These funds were utilized for the purchase of laboratory equipment for the physiology laboratory of the CRL and for certain equipment for general use by the CRL.

The proceedings of the International Conference on Cholera, held in December 1960 in Dacca, is now at the printer. This 150-page monograph will make available to scientists throughout the world the most current information on cholera.

The preceding discussion has been concerned primarily with the base laboratory at Dacca, but the SEATO cholera research program embraces investigations of the disease in the other nations of southeast Asia. Because of this, members associated with the program followed with great interest the outbreak of an epidemic of cholera in Hong Kong in August 1961. Over 130 specimens of *V. cholerae* from Hong Kong patients were supplied by the health department of the colony to NIH investigators and their university colleagues who were concerned with the program. As a result, new and rapid methods for the cultivation and identification of *V. cholerae* organisms were developed and special antisera were stockpiled during August and September in preparation for the expected spread of the disease from Hong Kong to other islands in the West Pacific. In mid-October two bacteriologists who had been concerned with these techniques and special sera, one from Jefferson Medical College and the other from NIH, went to Manila to work with the Philippine Health Department and the NAMRU–2 team from Taipei to evaluate the techniques and to demonstrate the new methods of diagnosis. Within a few days it was evident that the new methods were vastly superior to those in use. In collaboration with their Manila colleagues, they taught the techniques to other Philippine bacteriologists brought in from outlying areas, and supplied them with the new diagnostic materials.

During the year, a revised agreement between the Government of Pakistan and the United States has been negotiated in order to facilitate the research effort. Among other things, this provides greater autonomy for the CRL and gives it a directing council and a technical advisory committee. It is tentatively planned that both the directing council and the advisory group will meet in January 1962. The former will be concerned with policy and budgetary matters and the latter with a review of the scientific program and its projection into the future.

Special Report: Research Unit in Ghana

In fiscal 1962, funds were made available for the development of a research unit in Ghana, which will work in collaboration with the newly established Ghanaian National Institute of Health and Medical Research. Plans for this unit were initiated as a result of a direct request by the President of Ghana to the President of the United States on July 6, 1961. Trips were made in the spring and summer by National Institutes of Health personnel to determine the feasibility of such a program and a tentative agreement between the two countries was negotiated. The amount of $350,000 was allocated for the first year to provide a nucleus of personnel as well as the cost of equipping the laboratory. On January 3, 1962, a formal agreement between the two countries was signed. The current budget requests $500,000 for this operation in 1963.

The specific mission of the NIH unit in Ghana is to provide research personnel, trained in the biomedical sciences, to study medical problems in Ghana. These problems must be of mutual interest to the Government of the United States and the Government of Ghana. Personnel assigned to this mission will also assist in the research training of qualified Ghanaians in order to increase the medical research efforts of that country.

The unit will also work closely with other U.S. programs in Ghana, governmental and nongovernmental. Both the Harvard University Institute of Tropical Medicine and the Interdepartmental Committee on Nutrition for National Defense have an interest in Ghana, and representatives of these programs have been in touch with personnel involved in the planning of the Ghana unit of the National Institutes of Health.

Ghana offers many unusual opportunities for the study of diseases which are rarely seen in unmodified form in the United States. Because of the present lack of medical information and poor diagonostic facilities in Ghana, the initial research efforts will be made in the fields of pathology, epidemiology, nutrition, hematology, microbiology, and anthropology. These research fields are basic to studies of cancer and other diseases of known concern to West Africa. Additional programs will be added as research opportunities and interest develop.

Specific administration of the research program has been delegated to the National Cancer Institute; and Dr. John Edgcomb, an outstanding member of the NCI Laboratory of Pathology, has been selected as director.

The Government of Ghana is furnishing both laboratory and housing space for personnel assigned to this program. This space is estimated to be ready for occupancy in March and NIH anticipates arrival of the first contingent of personnel on or about April 1. Additional personnel will be assigned and transferred to Ghana throughout 1962 and 1963 as research programs are developed.

To date, the opportunity for investigators to collaborate on studies of major importance in a foreign setting has attracted the interest of many highly qualified scientists. It is already apparent that the ultimate professional staff of this program will represent an excellent cross section of outstanding medical research talent, uniting on a new frontier with great research potential.

Special Report: International Postdoctoral Research Fellowships

The international postdoctoral research fellowship program, which was established in fiscal year 1958, in the Division of Research Grants and later organizationally moved to the Division of General Medical Sciences, was incorporated into the Office of International Research, Office of the Director, July 1, 1961.

The purpose of the program is to provide support for young, promising research workers from foreign countries during periods of research and training in U.S. universities and institutions as a means of securing a free exchange of ideas and technical information with the scientists of the United States. Continuing cooperative research arrangements between the laboratory to which the fellow returns and his host laboratory in the United States often results from the fellowship experience. Selection of fellows to participate in this program continues to be made according to a very rigid screening process which was set up at the beginning of the program, using local nominating committees composed of outstanding research scientists in participating countries. Forty-one countries are now participating in the NIH program. Fellows are brought to the United States under exchange visitors visas which require them to return to their home countries.

Awards made since the present program was established are as follows:

	Number	Amount
1958	16	$101,821
1959	49	340,865
1960	68	500,508
1961	92	675,390

Applicants to the local nominating committees are required to obtain U.S. sponsorship before applying. Arrangements for sponsors are usually made between senior scientists in the laboratory in which the fellow is working and the head of the proposed host laboratory in the United States.

Upon nomination of the specified number (usually 4 or 5) the nominating committee sends official applications on blanks used in the regular NIH fellowship programs. The application is accompanied by transcripts of academic records, evaluation statements from four or more scientists who know the nominee's background and accomplishments, and data peculiar to the country of the nominee's origin, and a certificate of sponsorship from the U.S. host laboratory. In addition, the nominating committee is encouraged to write a supporting document stating reasons the applicant was nominated.

The data submitted is reviewed by a professional staff member in the Foreign Grants and Awards Branch, OIR-OD at NIH and additional information or points needing elaboration or documentation are sought by correspondence with the local committee, nominee, or sponsor as seems advisable. Copies of the completed application are then forwarded to the members of the NIH International Fellowship Review Panel for study. This panel meets once each year. This panel is made up of scientists of the National Institutes of Health and leading universities of the United States.

Nominations are due at NIH by January 15 of each year. The panel meets in March and awards are announced on or before April 1.

Payment of stipends and other benefits are made to sponsoring institutions by a fellowship grant (except where the sponsoring institution is a Government agency in which case payments are made directly to the fellow by NIH).

Stipends and benefits are the same as for U.S. fellows, namely, $5,000 base stipend, $500 additional for spouse and each dependent child, travel at 8 cents per mile to and from the fellow's home laboratory, and (except to Government agencies) a $500 supply grant.

The duration of the award is 1 year, with renewal for an additional year possible if the local nominating committee approves the renewal as one of their allowable nominees and the NIH panel approves.

The participating countries are: Argentina, Australia, Austria, Belgium, Bolivia, Brazil, British West Indies, Ceylon, Chile, Colombia, Costa Rica, Denmark, El Salvador, Finland, France, Germany, Greece, Holland, India, Iran, Ireland, Israel, Italy, Japan, Mexico, New Zealand, Norway, Pakistan, Peru, Philippine Islands, Poland, South Africa, Spain, Sweden, Switzerland, Taiwan, Thailand, United Kingdom, Uruguay, and Yugoslavia.

It would be desirable to expand the program slowly over the next few years. In the interest of careful planning, the following schedule is proposed to provide for expansion in a limited number of additional countries, such as, Lebanon, Turkey, Egypt, Central America, and African countries below the Sahara as evidence of research potential and political stability indicate that the training of research workers will have beneficial effects.

Fiscal year	Number countries	Awards	Costs
1963	44	141	$1,200,000
1964	46	150	1,350,000
1965	48	160	1,390,000
1966	49	166	1,450,000
1967	50	180	1,530,000

When fellows return to their home institutions they may receive, under specified circumstances, a small returning fellow grant to permit them to purchase equipment which they learned to use in the United States and to permit continued use of the training received.

International postdoctoral research fellows—Countries of origin

Country	Total	1961	1960	1959	1958
Argentina	6	[1] 2	2	2	----------
Australia	6	2	2	2	----------
Austria	7	[1] 2	2	1	2
Belgium	9	[1] 4	2	2	1
Brazil	9	[1] 4	2	3	----------
Ceylon	1	1	----------	----------	----------
Chile	6	[1] 1	[1] 2	3	----------
Colombia	4	[1] 2	1	1	----------
Denmark	9	4	4	1	----------
El Salvador	1	----------	----------	1	----------
Finland	6	1	3	1	1
France	12	4	[1] 3	3	2
Germany	11	[1] 5	2	3	1
India	5	2	3	----------	----------
Iran	6	4	2	----------	----------
Israel	6	4	2	----------	----------
Italy	9	[1] 4	2	2	1
Japan	9	4	3	2	----------
Mexico	8	3	3	2	----------
Netherlands	7	1	3	2	1
New Zealand	4	2	----------	2	----------
Norway	7	2	3	----------	2
Peru	8	[1] 3	[2] 3	2	----------
Philippines	7	[1] 3	2	2	----------
South Africa	5	3	2	----------	----------
Spain	8	[1] 4	[1] 3	1	----------
Sweden	9	4	2	1	2
Switzerland	9	[1] 3	[1] 2	[1] 3	1
Thailand	7	[1] 3	2	2	----------
United Kingdom	13	5	4	2	2
Uruguay	6	3	1	2	----------
Yugoslavia	6	3	3	----------	----------
Total	226	92	70	48	16

[1] Includes 1 fellow who continued training for the 2d year.
[2] Includes 2 fellows who continued training for the 2d year.

EXAMPLES OF RESEARCH UNDER FOREIGN CURRENCY PROGRAM

Mr. Fogarty. Tell us what programs you are planning this year and what you will do next year.

Dr. Cummings. Underway this year in Brazil are three studies: one to search for anticancer agents from a series of snake, spider, and scorpion venoms which are available in a research institute in São Paulo.

A second study is to search for medicinals in rare botanicals also available in Brazil.

A third is the study of schistosomiasis, a disease caused by snails.

In Egypt there are metabolic studies on certain tropical anemias that are underway. In India we have had some real difficulties in mounting a program, but I am pleased to inform the committee that a study has just been activated to investigate vegetable protein supplements in protein malnutrition which occurs frequently in the children and adults of India.

In Israel we have had, I would say, very good success in mounting programs taking advantage of the various ethnic and geographic conditions of this small country. We have underway a large-scale epidemiological study of high blood pressure and myocardial infarctions.

In addition, since Israel is the only country which has available oxygen 18, one of our scientists is working with an Israel scientist and they are using this unusual isotope as a tracer element in certain metabolic studies.

Mr. FOGARTY. What is oxygen 18?

Dr. CUMMINGS. Oxygen 18 is the radioactive form of oxygen. We have isotopes of many elements. In Israel there is the only source of oxygen 18 that I am aware of, developed at the Weizmann Institute.

COUNTRIES IN WHICH RESEARCH IS CONDUCTED

Mr. FOGARTY. In how many advanced countries are we doing some research?

Dr. CUMMINGS. We are not supporting research with 480 funds in the advanced countries. But with our dollar grants we now have support of research in the United Kingdom, Sweden, Canada, France, Italy; I would say in all of the advanced countries which are friendly with the United States we have some grant support.

Mr. FOGARTY. Will you supply for the record every country and what sort of projects we are supporting in these countries and how the expenditures are controlled? Then you might tell us if you think we are receiving full benefit.

Dr. CUMMINGS. I would be very pleased to provide that information for the record.

(The information follows:)

The NIH provides grant support for biomedical research performed by foreign scientists when it is expected that the results of such studies are likely to advance the status of the health sciences in the United States as well as the country of the applicant. Research which is relevant to a specific NIH program may be supported by contract or by research agreement.

The Office of International Research is responsible for establishing mechanisms adequate to assure that the general policies and specific criteria governing the NIH international programs are applied effectively and economically.

This mechanism should be adequate to assure that all research applications are reviewed, preferably on the scene, by a person or group having the full confidence of NIH. Reviewers may include study section or council members, U.S. scientists with personal knowledge of applicants and their institutions, foreign scientists in whom NIH has confidence, or NIH staff members.

Preliminary review should take into account the ability of the scientist, the worth of his proposal, the environment within which he works, and, when appropriate, the total content of the Nation's effort in the medical sciences.

CRITERIA FOR FOREIGN AWARDS

The NIH will accept for scientific evaluation and review research proposals which meet both the following criteria:

(1) The research proposed is outstanding, or original in concept, or would utilize the talents, skills, materials, or other resources not likely to be available in the United States; and

(2) The proposal is of such a nature that the results are likely to advance significantly the status of the health sciences in both the country of the applicant and the United States.

MECHANISMS

Whenever possible, the existing mechanisms of receipt of applications and the scientific and administrative review of research proposals is the responsibility of the institutes and divisions involved. However, those international program areas which go beyond the responsibilities and interest of a single institute and which relate to NIH as a whole become the responsibility of the Office of the Director, NIH. The existence of activities and problems of this nature (in large measure resulting from the need to inform and clear international research developments with many other elements of PHS, Office of the Secretary, HEW, Department of State, etc.) have led to the establishment of a coordinating Office of International Research. In order to perform these functions as well as to facilitate program analysis and budgetary planning, the following functions are performed by the Office of International Research, Office of the Director, NIH:

This Office is responsible for coordinating all international activities of the National Institutes of Health. It advises the Director and the Office of the Surgeon General on matters relating to the international aspects of medical research and research training, and assists the Institutes in development of international programs. It is specifically responsible for administration of the NIH Public Law 480 program and coordinating Institute proposals for research under this program in foreign countries. The Office constitutes the central point within NIH for relationships with the World Health Organization, the Pan American Health Organization, and other international research and scientific organizations. The Office is comprised of an Office of the Chief, a Foreign Grants and Awards Section, a Special Foreign Currency and Program Services Section, and a Program Analysis Section. The Office is also responsible for establishing and administering NIH oversea offices.

This Office will provide a mechanism whereby the National Institutes of Health can work with international organizations, foreign institutions, and scientists on a planned, predictable long-range basis.

The OIR, in collaborating with the Institutes, will be responsible for an organized systematic assessment of medical research potential and research resources in foreign countries. This will facilitate the implementation of direct (intramural) conduct of research overseas by NIH as well as providing information for study sections and advisory councils in their review of foreign grant applications.

LISTED BELOW ARE THE NAMES OF THE INVESTIGATORS, TITLES OF THE INVESTIGATIONS AND THE AMOUNT OF THE AWARDS MADE IN 1961

ARGENTINA

BUENOS AIRES

Buenos Aires, University of

De Robertis, E.	Ultrastructure of synaptic endings	B-1549C3	8	10,000
Mancini, Roberto E.	Distribution of pituitary hormones in the rat	A-4220	18	6,000
Paladini, Alejandro	Angiotensin in experimental and human hypertension.	H-5153	4	3,500

Institution total, 3 grants, $19,500

Instituto de Biologia y Medicina Experimental

Houssay, Bernardo A.	Role of endocrine glands in pathological conditions.	C-4745C2	18	15,000

Institution total, 1 grant, $15,000

BUENOS AIRES—Continued

Instituto de Investigaciones Bioquimicas Fundacion Campomar

Leloir, Luis F.	Enzymes and coenzymes acting on hexosephosphates.	G-3442C9	26	$12,200

Institution total, 1 grant, $12,200

Instituto Modelo Luis Agote—University of Buenos Aires

Soto, Roberto J.	A study of iodine metabolism of goiter in Argentina.	A-4728	34	2,300

Institution total, 1 grant, $2,300

Ramos Mejia Hospital

Cabrini, Romulo L.	Acid and alkaline phosphatase in scorbutic wounds.	D-1155C1	8	3,295

Institution total, 1 grant, $3,295

CORDOBA

Instituto de Investigacion Medica Mercedes y Martin Ferreyra

Taleisnik, Samuel	Regulation of parathyroid function	RF-3	58	2,500

Institution total, 1 grant, $2,500

STATE TOTAL, 8 grants 54,795

AUSTRALIA

ADELAIDE

Adelaide, University of

Maxwell, George M.	Metabolism of the canine and marsupial heart	H-5466	4	17,797
Rowley, Derrick	Role of opsonins in susceptibility to infections	E-3226C1	13	25,000

Institution total, 2 grants, $42,797

CANBERRA

Commonwealth Scientific and Industrial Research Organization

Day, M. F.	Multiplication of an insect polyhedron virus	E-2462C2	17	3,850

Institution total, 1 grant, $3,850

MELBOURNE

Melbourne, University of

Burnstock, Geoffrey	Autonomic nerve—smooth muscle transmission	B-2902	9	22,000
Gibson, Frank W.	Metabolism of aromatic compounds by microorganisms.	A-4632	2	27,065
Rose, Samuel	Continuous microinjection in cancer and biology	C-5360	12	39,070
White, Michael J.	Insect population genetics—heterosis and epistasis	G-7212	29	10,392

Institution total, 4 grants, $98,527

Walter and Eliza Hall Institute

Nossal, Gustav J.	Genetic studies on immunologically competent cells.	E-3958	29	34,729

Institution total, 1 grant, $34,729

SYDNEY

Sydney, University of

Freeman, Hans C.	Crystal structures of some metal-peptide complexes.	A-3460C1	1	15,749
Sutcliffe, John P.	The relation of imagery and fantasy to hypnosis	M-3950	21	14,035
Do	do	M-3950S1	21	360

Institution total, 3 grants, $30,144

STATE TOTAL, 11 grants 210,047

4. Research Projects Grants

Investigator	Project title	Grant No.		S.S. Dollars
AUSTRIA				
VIENNA				
Vienna, University of				
Holzner, Johann H	Histochemistry of the human liver	RF-4	85	$2,875
Piffl, Eduard	Card index of the oribatid mites of the world	E-3499	17	2,300
Preining, Othmar	Studies on aerosols	RF-7	28	2,875
Seitelberger, Franz	Studies on pigments of brain stem—pallidum, zr, sn.	B-2548R1	8	21,850
Institution total, 4 grants, $29,900				
STATE TOTAL, 4 grants				29,900
BELGIUM				
ANTWERP				
Institut Bunge				
Lowenthal, Armand	Electrophoretic study of cerebral tissue proteins	B-2316C1	8	7,820
van Bogaert, A	Pulmonary arterial and cardiovascular effects	H-6012	4	14,325
Institution total, 2 grants, $22,145				
World Federation of Neurology				
Gozzano, Mario	Neurology and neuropathology international congresses.	B-2761	96	30,000
Do	do	B-2761S1	96	14,000
van Bogaert, Ludo	International neurological research implementation	B-2420C2	41	126,190
Institution total, 3 grants, $170,190				
BRUSSELS				
Brussels, University of				
Desmedt, Jean E	Neural mechanisms in acoustic perception	B-2482C1	30	14,000
Dumont, J. E	Thyroid energetic metabolism and its control	RF-10	58	2,437
Errera, Maurice L	Influence of nuclear damage on cell metabolism	G-6214C2	27	3,631
Institution total, 3 grants, $20,068				
Institut Jules Bordet—University of Brussels				
Tagnon, Henry J	European breast cancer study group	C-4896	12	9,890
Institution total, 1 grant, $9,890				
GHENT				
Ghent, University of				
Denuce, J. M	Origin and function of serum proteins in invertebrate.	A-5048	13	11,100
Heymans, C	Basoceptors in hypertension, hypothermia, lung	H-3393C3	4	9,000
Institution total, 2 grants, $20,100				
LIEGE				
Institute for Experimental Therapeutics				
Dallemagne, Marcel	Biochemistry and physiology of bone and teeth	D-878C1	33	3,250
Institution total, 1 grant, $3,250				
LOUVAIN				
Louvain, University of				
Heremans, Joseph F	Metabolism of gamma globulins in liver disease	A-4263	22	19,400
Hers, Henri G	A biochemical study of glycogen storage disease	A-4053C1	8	11,500
Vandenbroucke, J	Function of gastroesophageal and ileocolic sphincter	A-3987C1	22	7,600
Institution total, 3 grants, $38,500				
STATE TOTAL, 15 grants				284,143

BRAZIL

RIBEIRAO PRETO

Faculty of Medicine of Ribeirao Preto—University of Sao Paulo

Investigator	Project title	Grant No.	S.S.	Dollars
De Almeida, Jose O.	Immunological studies on human and murine leprosy.	E-3760	24	$17,250
Rocha e, Silva M.	Bradykinin in central nervous system phenomena	B-2952	14	20,250

Institution total, 2 grants, $37,500

RIO DE JANEIRO

Brazil, University of

Investigator	Project title	Grant No.	S.S.	Dollars
Chagas, Carlos	Study of the mechanism of curarization	B-1471C3	14	19,000
Leao, Aristides A.	Electric and chemical aspects of spreading depression.	B-2219C1	3	3,450

Institution total, 2 grants, $22,450

Instituto de Biofisica, University of Brazil

Investigator	Project title	Grant No.	S.S.	Dollars
De Carvalhoa, P.	Studies on the atrioventricular node of the heart	H-5148C1	9	8,740

Institution total, 1 grant, $8,740

SALVADOR BAHIA

Bahia, University of

Investigator	Project title	Grant No.	S.S.	Dollars
Andrade, Zilton A.	Pathology of the liver in human schistosomiasis	RF-17	58	2,875

Institution total, 1 grant, $2,875

SAO PAULO

Faculty of Medicine—University of Sao Paulo

Investigator	Project title	Grant No.	S.S.	Dollars
Eichbaum, Francisco	Neural mechanism of circulatory failure in diphtheria.	H-5477	14	17,430
Raw, Isaias	Studies of electron transport enzymes	G-7940	2	12,000

Institution total, 2 grants, $29,430

Instituto Adolfo Lutz

Investigator	Project title	Grant No.	S.S.	Dollars
Lopes, Oscar S.	Studies on arthropod-borne viruses in Sao Paulo	RF-1	58	2,500

Institution total, 1 grant, $2,500

STATE TOTAL, 9 grants 103,495

CANADA

EDMONTON

Alberta, University of

Investigator	Project title	Grant No.	S.S.	Dollars
Kay, Cyril M.	Secondary and tertiary structure of proteins	A-4110C1	2	5,750
Palmer, Keith H.	Taxaceae—the structure of the cardiotonic compounds.	H-5310R1	89	18,050
Uhl, Charles N.	A preliminary study of multiple-stimulus learning	M-4894A	60	2,200

Institution total, 3 grants, $26,000

FREDERICTON

New Brunswick, University of

Investigator	Project title	Grant No.	S.S.	Dollars
Paivio, Allan U.	Personality factors in reactions to observers	M-4188	23	6,000

Institution total, 1 grant, $6,000

GUELPH

Ontario Veterinary College

Investigator	Project title	Grant No.	S.S.	Dollars
Mustard, James F.	Phospholipids, blood coagulation, and atherosclerosis.	H-4964C1	6	19,600

Institution total, 1 grant, $19,600

Investigator	Project title	Grant No.	S.S.	Dollars
CANADA—Continued				
HAMILTON				
McMaster University				
Black, Abraham H	Conditioning under curarelike drugs	M-2741C2	36	$12,132
Institution total, 1 grant, $12,132				
KINGSTON				
Queens University				
Jones, John K	Carbohydrate-protein compounds of animals	A-4127C1	2	8,395
West, A. S	Reactions to insect bites—causes and effects	E-1155C4	17	20,125
Institution total, 2 grants, $28,520				
LONDON				
Western Ontario, University of				
Brown, A. W	Studies on the insecticides-resistance of mosquitoes.	E-2320C2	17	10,000
De Mayo, Paul J	The constitution of griseoviridin	E-3317R1	89	9,752
Institution total, 2 grants, $19,752				
MONTREAL				
McGill-Montreal General Hospital Research Institute				
Quastel, J. H	Effects of aliphatic alcohols on tissue metabolism	B-2132C2	26	13,800
Institution total, 1 grant, $13,800				
McGill University				
Beck, John C	Metabolic effects of growth hormone in man	G-7402C1	18	47,421
Bindra, Dalbir	Interaction of habit strength and drug effects	M-3238C1	51	14,260
Blank, Fritz	Chemistry of constituents of dermatophytes	E-4050	40	13,900
Cleghorn, Robert A	Metabolism of amines in relation to mental illness	M-3050C1	51	25,434
Fairbairn, Donald	Biochemistry and physiology of *Ascaris lumbricoides*.	E-2138C2S2	17	6,807
Do	do	E-2138C3	17	24,460
Giroud, Claude J	Mechanisms of aldosterone biogenesis	A-4295	18	19,867
Hebb, D. O	Studies of learning, perception, and motivation	M-2455C2	36	11,500
Hollenberg, Charles	Hormonal effects on Lipid metabolism	H-5282	33	9,775
Hosein, Esau A	Neurophysiologic effects of gamma butyrobetaine	B-1756C1SR	14	6,267
Do	do	B-1756C2	14	13,167
Langman, Jan	Formation and localisation of lens antigens in man	B-3245	13	15,410
Lowenstein, Louis	Anemia and nutritional deficiencies in pregnancy	A-5200	6	23,000
Malmo, Robert B	Specificity of physiological reactions to stress	M-1475C4	36	16,675
Mason, S. G	The rheology of blood	H-5911	11	11,385
McKenzie, John M	Investigation of the pathogenesis of hyperthyroidism.	A-4121C1	18	10,626
Metrakos, Julius De	Genetics of the epilepsies	B-706C6	29	20,222
Milner, Brenda	Study of learning and perception in brain-damaged man.	B-2831	36	8,165
Rose, Bram	Hypersensitivity mechanisms in man	E-1322C4	13	17,000
Scriver, Charles R	Genetic, coenzyme, and transport factors in metabolism.	A-5117	33	14,000
Sehon, Alec	Physiochemical studies of antigen-antibody systems.	E-2085C2	13	31,450
Sheldon, Huntington	Connective tissue cells in scurvy and rickets	A-4422	27	17,910
Solomon, Samuel	*In vivo* and *in vitro* metabolism of steroid hormones	A-4329	18	26,154
Do	do	A-4329S1	18	28,152
Timel, Tore E	The acid hydrolysis of glycuronosidic bonds	A-4258	40	12,000
Venning, Eleanor H	Mechanisms in the secretion of aldosterone	H-2716C4	18	9,890
Institution total, 26 grants, $454,897				
Montreal General Hospital				
McCallum, J. L	Aetiology of aphthous lesions of the mouth	D-1331	5	2,000
Institution total, 1 grant, $2,000				

CANADA—Continued

MONTREAL—Continued

Montreal, University of

Investigator	Project title	Grant No.	S.S.	Dollars
Adamkiewicz, V. W	Insulin sensitization to anaphlactoid inflammations	A-2260C2	8	$9,901
Do	----do	A-2260C2S1	8	9,200
Isler, Henri	Thyroid tumor production by a low iodine diet	C-5489	18	14,720
Selye, Hans	Experimental morphology of skeletal structures	A-1641C2	27	34,500
Do	Hormones, electrolytes, and the nervous system	B-2037C2	8	39,100
Do	The mechanism of acute infarctoid cardiopathy	H-3688C3	8	32,400
Do	----do	H-3688C3S1	8	2,100

Institution total, 7 grants, $141,921

Notre Dame Hospital

Investigator	Project title	Grant No.	S.S.	Dollars
Lanthier, Andre	Metabolism of aldosterone *in vito* and *in vitro*	A-4327	18	16,752
Do	Androgenic steroid by synthesis ovarian slices	A-4330	18	5,968

Institution total, 2 grants, $22,720

Royal Victoria Hospital

Investigator	Project title	Grant No.	S.S.	Dollars
Kalz, Frederick	Investigation of capillary permeability in human skin.	H-5226	22	7,650

Institution total, 1 grant, $7,650

Third World Congress of Psychiatry

Investigator	Project title	Grant No.	S.S.	Dollars
Cameron, D. E	Third World Congress of Psychiatry	M-4324	96	75,000

Institution total, 1 grant, $75,000

ONTARIO

University of Ottawa

Investigator	Project title	Grant No.	S.S.	Dollars
Bohatirchuk, Fedor	Dynamics of bone aging	A-2298C2	22	9,215

Institution total, 1 grant, $9,215

QUEBEC

Laval University

Investigator	Project title	Grant No.	S.S.	Dollars
Fortier, Claude	Neurohumoral control of adrenocosticotrophic activity.	B-2827	18	17,432
Lamarche, Guy	Unit study of trigemenal afferents in the monkey	B-3200	3	6,612

Institution total, 2 grants, $24,044

SASKATOON

Saskatchewan, University of

Investigator	Project title	Grant No.	S.S.	Dollars
Agnew, J. N	Performance as a function of drive level	M-3612C1	36	13,255
Do	----do	M-3612C1S1	36	6,500
Altschul, Rudolph	Heme compounds and cholesterol metabolism	H-4568C1	33	8,338
Drance, Stephen M	Ocular hypotensive effects of anthranilic acid	B-2714	30	1,800
Jaques, Louis B	Spontaneous hemorrhage with anticoagulant drugs	H-4877C1	6	24,150
Sutherland, G. B	Anaphylactic responses in blood and smooth muscle	H-5795	13	14,950
Woodford, V. R., Jr	Enzymatic mechanisms in catechol-amine biosynthesis.	A-3812C1	34	11,500

Institution total, 7 grants, $80,493

TORONTO

Ontario Cancer Institute

Investigator	Project title	Grant No.	S.S.	Dollars
Ham, Arthur	Relation of virus to tumors in animals and man	C-4964C1	25	58,104

Institution total, 1 grant, $58,104

Toronto, University of

Investigator	Project title	Grant No.	S.S.	Dollars
Best, Charles H	Choline, methionine, and fat metabolism	A-3523C1	34	19,000
Movat, Henry Z	Electron microscopy—acute glomerulonephritis	H-5657	8	13,110
Poyton, H. G	Film contrast evaluation—dental X-ray film definition.	D-1329	31	405
Siminovitch, Louis	Mammalian cells and viruses cultivated *in vitro*	E-2592C2	25	16,600

Institution total, 4 grants, $49,115

4. Research Projects Grants

CANADA—Continued

TORONTO—Continued

York University

Investigator	Project title	Grant No.	S.S.	Dollars
Coughlin, Richard J	Reproduction and birth in Asia	G-8237	23	$1,900

Institution total, 1 grant, $1,900

VANCOUVER

British Columbia, University of

Investigator	Project title	Grant No.	S.S.	Dollars
Band, Rudolph N	Physiological investigations of *Hartmannellid amoebae*.	E-3749	17	11,788
Dolman, Claude E	Essays in the history of bacteriology	E-3625	93	5,500
Dutton, Guy G	Structure of synthetic polysaccharides	G-7652	89	13,627
Finnegan, Cyril V	The differentiation of the hypomere in slamanders.	G-6178C1S1	27	2,800
Do	do	G-6178C2	27	7,370
Kutney, James P	Synthesis of steroid analogs	C-5037	89	5,000
McGeer, Patrick L	Analysis of aromatic urinary compounds	H-5664	14	9,200
Stein, Janet R	Genetics and cell differentiation in gonium	G-7213	29	7,411
Tener, Gordon M	The isolation and identification of polynucleotides	C-5342	2	23,740
Wada, Juhn A	Chronic focal epileptogenic lesions and structures	B-2812	3	7,300

Institution total, 10 grants, $93,736

Technological Station Fisheries Research Board of Canada

Investigator	Project title	Grant No.	S.S.	Dollars
Idler, David R	Sterols of marine invertebrates	A-4490	26	8,092

Institution total, 1 grant, $8,092

WINNIPEG

Manitoba, University of

Investigator	Project title	Grant No.	S.S.	Dollars
Chown, Bruce	Materno-fetal barrier and Rh	H-3238C3	7	13,765
Frank, George B	Pharmacological studies on isolated cerebral cortex.	B-2647	14	11,500
Hagen, Paul B	Pharmacologic studies on the autonomic nervous system.	B-2282C1	14	14,000
Labella, Frank S	Reactivity of tissue glycoproteins	G-7404	2	4,600

Institution total, 4 grants, $43,865

STATE TOTAL, 80 grants $1,198,556

CHILE

SANTIAGO

Chile, University of

Investigator	Project title	Grant No.	S.S.	Dollars
Agosin, Moises	Metabolism of *Echinococcus granulosus*	E-1867C3	17	2,100
Do	do	E-1867C3S1	17	525
Cori, Osvaldo	Biosynthesis of phosphocreatine and phosphoarginine.	G-5631C3	26	7,000
Neghme, Amador	Insecticide-resistance in *Triatoma infestans*	E-2300C2	17	4,400
Rojas-Villegas, F	Race and diet as factors in atherosclerosis in Chile	H-4354C1	38	6,950
Yudilevich, David L	Transcapillary movement by multiple tracer methods.	H-5929	9	18,200

Institution total, 6 grants, $39,175

Instituto de Neurocirugia e Investigaciones Cerebrales Chile U

Investigator	Project title	Grant No.	S.S.	Dollars
Martinez, Alfonso	Electronmicroscopic study of cerebral vessels in man.	H-5172	8	9,430

Institution total, 1 grant, $9,430

Fundacion Lopez Perez

Investigator	Project title	Grant No.	S.S.	Dollars
Raventos, Enrique	Chemistry, immunology of urinary proteoses in cancer.	C-5541	13	16,330

Institution total, 1 grant, $16,330

STATE TOTAL, 8 grants 64,935

COLOMBIA

BOGOTÁ

Hospital de San Juan de Dios

Investigator	Project title	Grant No.	S.S.	Dollars
Lichtenberger, Egon	Study on atherosclerosis in Colombia	H-4538C1	8	$1,800

Institution total, 1 grant, $1,800

MEDELLIN

Antioquia, University of, Medical School

Investigator	Project title	Grant No.	S.S.	Dollars
Latorre, Guillermo	Renal ischemia and changes in body composition	H-5136	9	6,903

Institution total, 1 grant, $6,903

STATE TOTAL, 2 grants 8,703

COSTA RICA

SAN JOSE

Costa Rica, University of

Investigator	Project title	Grant No.	S.S.	Dollars
Zeledon, Rodrigo A.	Comparative physiology of leishmania	E-3304R1	17	9,545

Institution total, 1 grant, $9,545

STATE TOTAL, 1 grant 9,545

DENMARK

AARHUS

Aarhus University Medical School

Investigator	Project title	Grant No.	S.S.	Dollars
Skou, Jens C.	Enzyme system relationship to active transport of ion.	B-3253	2	3,500

Institution total, 1 grant, $3,500

COPENHAGEN

Copenhagen, University of

Investigator	Project title	Grant No.	S.S.	Dollars
Andersen, S. R.	Investigation of histogenesis of retinal tumors	C-4649C1	8	3,800
Kemp, Tage	Heredity in certain types of cancer	C-948C12	29	8,602
Maaloe, Ole U.	Role in protein synthesis of bacterial ribosomes	E-3115C1	2	880
Ussing, Hans H.	Physiology	H-6637	9	12,000

Institution total, 4 grants, $25,282

Copenhagen University, Hospital of

Investigator	Project title	Grant No.	S.S.	Dollars
Killmann, Sven-Aage	Pyrimidine uptake by normal and leukemic leukocytes.	C-5492	6	4,725

Institution total, 1 grant, $4,725

Technical University of Denmark

Investigator	Project title	Grant No.	S.S.	Dollars
Dam, Henrik	Experimental cholelithiasis	A-4964	33	9,975

Institution total, 1 grant, $9,975

University Clinic of Paediatrics—University of Copenhagen

Investigator	Project title	Grant No.	S.S.	Dollars
Plum, Preben	Multidisciplinary investigations on cerebral palsies.	B-2408C2	53	6,900

Institution total, 1 grant, $6,900

Danish Cancer Registry

Investigator	Project title	Grant No.	S.S.	Dollars
Clemmesen, Johannes	Danish and International Statistical Cancer Review.	C-3087C4	8	18,900

Institution total, 1 grant, $18,900

Danish College of Dentistry

Investigator	Project title	Grant No.	S.S.	Dollars
Bjork, Arne	Facial growth studies with metallic implants	D-843C2	5	3,300
Jorgensen, Knud D.	Crystallographic study of dental gypsum	D-842C2	5	3,800
Pindborg, Jens J.	Studies in oral leukoplakias	D-1358	5	7,130

Institution total, 3 grants, $14,230

Investigator	Project title	Grant No.	S.S.	Dollars
DENMARK—Continued				
Danish TB Index				
Groth-Petersen, E	Epidemiologic basis of tuberculosis eradication	E-3182C1	15	$20, 550
Do	do	E-3182C1S1	38	5, 247
Institution total, 2 grants, $25,797				
Gentofte Hospital				
Christenson, L. K	Biochemistry of thyroid hormones	RF-18	58	2, 500
Institution total, 1 grant, $2,500				
State Serum Institute				
Siim, J. C	Studies on acquired toxoplasmosis	E-1741C2	17	8, 782
Institution total, 1 grant, $8,782				
Tuberculosis Immunization Research Center				
Sorkin, Ernest	Detection of antibodies in tuberculin allergy	E-2547C2	13	14, 030
Institution total, 1 grant, $14,030				
STATE TOTAL, 17 grants				134, 621
EL SALVADOR				
SAN SALVADOR				
El Salvador, University of, School of Medicine				
Rodriguez, Maria I	Intraventricular conduction in mammalian heart	H-5475	9	31, 604
Institution total, 1 grant, $31,604				
STATE TOTAL, 1 grant				31, 604
FINLAND				
HELSINKI				
Helsinki, University of				
Eranko, Eino O	Function of adrenal medulla	A-1725C3	18	8, 050
Holsti, Paul	Bile acids as cause of liver injury	A-4443	8	18, 750
Do	Enhancement of tumorigenesis by free fatty acids	C-4621C1	8	6, 900
Makela, V. E	Genetic studies of antibody and antigen synthesis	RF-8	58	2, 875
Oksala, Tarvo A	Chromosome pairing and segregation in *Drosophila*	G-6780C1	29	8, 050
Setala, Kai	Mechanism of carcinogenesis in mice and rabbits	C-2930C4	27	9, 200
Do	Mechanism of experimental atherogenesis	H-4572C1	33	12, 420
Toivonen, Sulo I	Inductive agents in normal and malignant tissues	C-5347	27	20, 000
Vonbonsdorff, Berte	Vitamin B_{12} deficiency in tapeworm infestation	E-1693C3	17	6, 500
Wager, Odd	Serological studies in rheumatoid arthritis	A-3026R1	22	7, 400
Institution total, 10 grants, $100,145				
Institute of Occupational Health				
Juurmaa, Jyrki Y	The ability structure of the blind and deaf	M-3593C1	21	4, 250
Karvonen, Martti J	Epidemiology of heart disease in Finland	H-4754C1	34	5, 000
Institution total, 2 grants, $9,250				
TURKU				
Turku, University of				
Hannah-Alava, Aloha	Cis-trans position effect between nonallelic loci	G-6754C1	29	5, 767
Vilkki, Panu	Studies on phospholipids of thyroid	A-4773	18	20, 000
Institution total, 2 grants, $25,767				
STATE TOTAL, 14 grants				135, 162

FRANCE

GIF SUR YVETTE

Centre National de la Recherche Scientifique

Investigator	Project title	Grant No.	S.S.	Dollars
Lederer, Edgar	Chemical and biochemical research on bacterial lipids.	E-2838C1	26	$13,000

Institution total, 1 grant, $13,000

MARSEILLES

Faculty of Medicine—University of Aix-Marseilles

Investigator	Project title	Grant No.	S.S.	Dollars
Gastaut, Henri	International project on brain mechanisms in behavior.	M-3258C1	23	13,800

Institution total, 1 grant, $13,800

PARIS

Claude Bernard Association

Investigator	Project title	Grant No.	S.S.	Dollars
Minkowski, A	Enzymes and electrolytes in oxygen affinity	B-2432C1	41	12,400
Do	Neurological examination of premature newborn infants.	B-3130	7	5,750
Voisin, Guy A	Correlative study of homografts and autosensitization.	E-3555	13	23,000

Institution total, 3 grants, $41,150

Laboratoire de Recherche de Biologie Medecine Hopital des Enfants-Malades

Investigator	Project title	Grant No.	S.S.	Dollars
Dreyfus, Jean C	Research on the dynamic state of proteins and cells	G-6016C2	26	10,000
Schapira, Georges	Metabolic heterogeneity of hemoglobins	A-2773C2	26	10,000

Institution total, 2 grants, $20,000

Hospital Necker

Investigator	Project title	Grant No.	S.S.	Dollars
Netter, Pierre A	European Cooperative Breast Cancer Group	C-4894	12	6,300

Institution total, 1 grant, $6,300

Institut National d'Hygiene

Investigator	Project title	Grant No.	S.S.	Dollars
Nouffiard, H	Drug-resistant tuberculous infections in children	E-3263C1	24	11,155
Philippe, Laudat	Lipid metabolism in three endocrinological diseases.	RF-16	58	2,500

Institution total, 2 grants, $13,655

Institut National de la Recherche Agronomique

Investigator	Project title	Grant No.	S.S.	Dollars
Busnel, Reneguy	Biochemical brain changes induced by ataractic drugs.	M-2754C1	51	11,000

Institution total, 1 grant, $11,000

Naturalia and Biologia Society

Investigator	Project title	Grant No.	S.S.	Dollars
Bessis, Marcel C	Differentiation of normal and leukemic blood cells	C-4664C1	6	9,757

Institution total, 1 grant, $9,757

Paris, University of

Investigator	Project title	Grant No.	S.S.	Dollars
Chany, Charles	Studies on pre- and perinatal virus infections	E-2235C2	7	11,367
Dausset, Jean	Surface leukocyte antigens and skin grafts	C-5573	13	28,010
Pullman, Bernard	Electronic molecular structure and cancer chemotherapy.	C-3073C4	1	4,910

Institution total, 3 grants, $44,287

Clinique de Genetique Medicale—University of Paris

Investigator	Project title	Grant No.	S.S.	Dollars
Lamy, Maurice	Etiologic studies on mental deficiencies	M-3921C1	29	10,925

Institution total, 1 grant, $10,925

Pasteur Institut

Investigator	Project title	Grant No.	S.S.	Dollars
Grabar, Pierre	Degradation of protein antigens *in vivo* and *in vitro*	E-3225C1	13	15,525
Lacassagne, Antoine	Mechanism of carcinogenesis by conjugated molecules.	C-524C13	97	18,000
Laroche, Marie J	Histamine in experimental tuberculosis	RF-6	58	2,500
Latarjet, Raymond	Viruses in leukemia	C-5400	25	35,000
Monod, Jacques	Biochemistry of gene control of protein synthesis	E-3998	29	69,240

Institution total, 5 grants, $140,265

FRANCE—Continued

PARIS—Continued

Investigator	Project title	Grant No.		S.S. Dollars
Laboratoire of EEG and Applied Neurophysio-Salpetriere Hopital				
Remond, Antoine	Human cranio-cerebral elec-topographical developments.	B-1857C2	3	$4,830
Institution total, 1 grant, $4,830				
VILLEJUIF				
Institut de Recherches Scientifiques le Cancer-C.N.R.S.				
Grabar, Pierre	Viruses in relation to malignancy	C-4602C2	25	10,700
Institution total, 1 grant, $10,700				
STATE TOTAL, 23 grants				339,669

GREECE

Investigator	Project title	Grant No.		S.S. Dollars
ATHENS				
Athens, University of				
Fessas, Phaedon	The problem of hemoglobin H	H-4541C1	6	5,000
Institution total, 1 grant, $5,000				
INDIVIDUAL GRANT				
Papavassiliou, John	Importance of colicinogenic bacteria in feces	E-3506	24	600
Institution total, 1 grant, $600				
STATE TOTAL, 2 grants				5,600

GUATEMALA

Investigator	Project title	Grant No.		S.S. Dollars
GUATEMALA CITY				
Institute of Nutrition of Central America and Panama				
De-La-Vega, Jose M.	Nutrition research	A-5582	34	53,646
Institution total, 1 grant, $53,646				
San Carlos University of Guatemala City				
Aguilar, Francisco	Immunological tests for diagnosis of cysticercosis	E-3120C1	17	7,000
Institution total, 1 grant, $7,000				
STATE TOTAL, 2 grants				60,646

HONG KONG

Investigator	Project title	Grant No.		S.S. Dollars
HONG KONG				
Hong Kong, University of				
Barker, David	A quantitative study of mammalian proprioceptors	B-1806C2	9	8,000
Chang, K. S.	Growth and development of Chinese in Hong Kong	G-8387	38	16,795
Institution total, 2 grants, $24,795				
STATE TOTAL, 2 grants				24,795

ICELAND

Investigator	Project title	Grant No.		S.S. Dollars
REYKJAVIK				
Institute of Experimental Pathology—University of Iceland				
Sigurdsson, Bjorn	Visna—slow demyelinating leucoencephalitis of sheep.	B-2425	53	10,528
Institution Total, 1 grant, $10,528				
STATE TOTAL, 1 grant				10,528

INDIA

AGRA

Sarojini Naidu Medical College

Investigator	Project title	Grant No.	S.S.	Dollars
Wahi, P. N.	Study of genital carcinoma in women of Uttar Pradesh.	C-9603C1	8	$10,722

Institution total, 1 grant, $10,722

ALIGARH

Aligarh Muslim University

Investigator	Project title	Grant No.	S.S.	Dollars
Khan, Nawab H.	Development and inheritance of resistance in *M. nebulo.*	E-3946	17	10,000

Institution total, 1 grant, $10,000

BOMBAY

Nineteenth International Congress of Ophthalmology

Investigator	Project title	Grant No.	S.S.	Dollars
Sen, Kiran	Nineteenth international congress of ophthalmology	B-2696	53	10,000

Institution total, 1 grant, $10,000

CALCUTTA

Indian Institute for Biochemistry and Experimental Medicine

Investigator	Project title	Grant No.	S.S.	Dollars
Pakrashi, Satyesh C.	Hypotensive and tranquilizing alkaloids from india.	H-4320C2	14	10,925

Institution total, 1 grant, $10,925

CHANDIGARH

Panjab University

Investigator	Project title	Grant No.	S.S.	Dollars
Singh, Sheo D.	Effects of human contact on behaviors of monkeys	M-5263	43	2,300

Institution total, 1 grant, $2,300

DELHI

Vallabhbhai Patel Chest Institute—University of Delhi

Investigator	Project title	Grant No.	S.S.	Dollars
Venkitasubramanian, T. A.	Carbohydrate metabolism in tuberculosis	E-3427C1	33	3,300

Institution total, 1 grant, $3,300

STATE TOTAL, 6 grants 47,247

IRELAND

DUBLIN

Medical Research Council of Ireland Laboratories

Investigator	Project title	Grant No.	S.S.	Dollars
Barry, Vincent C.	The mode of action of isoniazid	E-2840C1	24	4,000
Do.	The tissue distribution of the rimino-compounds	E-2841C1	24	3,500
Do.	Nucleic acid metabolism of *Mycobacteria*	E-2842C1	24	4,000
Conway, Edward J.	The redox pump in the active transport of ions	H-4860C1	9	15,985

Institution total, 4 grants, $27,485

University College—National University of Ireland

Investigator	Project title	Grant No.	S.S.	Dollars
Meenan, Patrick N.	A study of the natural history of influenza	E-2733C1	25	15,393
Wheeler, Thomas S.	Heterocyclic-flavonoid types for anticancer testing	C-4759C1	89	3,000

Institution total, 2 grants, $18,393

STATE TOTAL, 6 grants 45,878

Investigator	Project title	Grant No.	S.S.	Dollars
ISRAEL				
JERUSALEM				
Hadassah Medical School—Hebrew University				
Bergmann, Felix G	Enxymatic oxidation of purines and pteridines	G-6631C1	2	$11,212
Bernkopf, H	Immunological studies on trachoma virus	B-2824	25	24,180
Citri, N	Mechanism of Alpha-gamma shift in penicillinase	E-3097C1	14	11,270
Clegg, John A	*In vitro* culture of *Schistosoma mansoni*	E-3532	17	10,644
Davies, Michael A	Immunological aspects of heart disease	H-5739	13	17,089
Feldman-Muhsam, B	Bionomics of ticks	E-1006C3	17	9,791
Gatt, Shimon	Metabolism of the sphingolipids and C^{24} fatty acids	B-2967	33	11,287
Gedalia, Itzhac	Fluorine content in teeth and bones of Fetuses	D-1323	5	5,865
Groen, Juda J	Coronary disease related to diet and ways of life	H-4427C1	38	42,550
Gross, Jack	Thyroid hormone action in hypothalamus and pituitary.	G-7403C1	18	11,500
Guggenheim, Karl	Characterization and etiology of meat anemia in mice.	A-4385	34	15,710
Hestrin, Shlomo	Synthesis of cellulose and related polysaccharides	E-1494C4	26	10,000
Nelken, D	Immunological aspects of corneal transplantation	B-2018C2	13	6,900
Rachmilewitz, M	B_{12} mobilization and transport in experimental anemia.	H-5769	33	18,849
Shapiro, Benyamin	Metabolism and transport of neutral fat	A-3038C1	33	15,065
Do	do	A-3038C1S1	33	2,900
Shilo, Moshe	Resistance increasing activity of lipopolysaccharides.	E-3762	13	15,300
Stein, Yeheskel	Biosynthesis of lipids in the aorta	H-5705	33	17,322
Weinreb, Max M	Tooth development in sheep	D-1319	5	2,300
Zuckerman, Avivah	Study of autoantibody in malaria	E-2859C1	17	5,750
Institution total, 20 grants, $265,484				
Hebrew University				
Bloch-Frankenthal	Glucose metabolism in neoplastic cells	C-5271	2	11,442
Kornblueth, Walter	Carbohydrate metabolism of the lens	B-2298C1	26	8,055
Schramm, Michael	Chemical mechanism of protein secretion by the cell	E-3426C1	2	11,800
Shanan, Joel	Psychological factors in functional amenorrhea	M-3498C1	21	8,165
Shulov, Aharon M	Immunology of venoms of poisonous Israel animals	E-2960C1	13	8,648
Institution total, 5 grants, $48,110				
Israel Institute of Applied Social Research				
Foa, Uriel G	Interpersonal factors in marriage	M-2669C2	21	6,468
Institution total, 1 grant, $6,468				
NEZ ZIONA				
Israel Institute for Biological Research				
Avidor, Yoram	Effect of carcinogenic agents on oxidative metabolism.	C-4344C2	2	7,475
Tietz, Alisa	Fat metabolism in insects	G-8135	33	13,050
Van der Hoeden, J	Epidemiological research on leptospirosis	E-3867	24	13,742
Institution total, 3 grants, $34,267				
PETAH TIQVA				
Hasharon Hospital				
Matoth, Yehuda	Studies on erythropoietin *in vitro*	H-4931C1	6	7,245
Institution total, 1 grant, $7,245				
Medical Research Institute—Beilinson Hospital				
De Vries, Andre	Epidemiology and etiology of urolithiasis in Israel	H-5774	22	17,652
Gitter, Simon	Venoms of Near East snakes—properties and immunology.	E-3171C1	8	28,260
Institution total, 2 grants, $45,912				

ISRAEL—Continued

REHOVOTH

Weizmann Institute of Science

Investigator	Project title	Grant No.	S.S.	Dollars
Berenblum, Isaac	Biochemical studies on urethan carcinogenesis	C-5263	26	$23,000
Do	A possible two-stage mechanism in leukemogenesis	C-5455	8	20,350
Elson, David	The latent enzymatic activity of ribonucleoproteins	G-5876C2	26	9,660
Halmann, Martin M	Mechanism of hydrolysis of organic phosphates	G-5842C2	26	13,800
Katchalski, Ephraim	Polyamino acids and their use as protein models	A-3083C1	1	25,000
Latvie, David	Antitumor compounds from *Ecballium* and related plants.	C-2810C4S1	40	4,800
Littauer, Uriel Z	Enzymatic ribopolynucleotide synthesis	G-5217C2	26	7,400
Paecht, Mella	Deamination, polymerization of amino acid-phosphates.	G-7852	40	24,033
Patchornik, Abraham	Selective chemical cleavage of histidyl-peptide bonds.	A-3171C1	2	7,475
Sachs, Leo	*In vitro* analysis of mammalian tumor viruses	C-5266	25	32,700
Sharon, Nathan	Studies of a diamino sugar from *B. subtilis*	E-3528	2	9,424
Traub, Wolfie	X-ray studies of polypeptides and nucleic acids	G-8608	1	26,340

Institution total, 12 grants, $203,982

TEL AVIV

Government Hospital—Tel Aviv-Jaffa

Investigator	Project title	Grant No.	S.S.	Dollars
Brunner, Daniel	Diet work and ethnic factors in vascular diseases	H-4520C1	34	25,000

Institution total, 1 grant, $25,000

TEL HASHOMER

Government Hospital

Investigator	Project title	Grant No.	S.S.	Dollars
Heller, Harry	Studies on familial Mediterranean fever	A-2857C2	22	13,200
Do	do	A-2857C2S1	22	16,341
Lunenfeld, Bruno	Clinical effects, purified human urinary gonadotropin	A-4590	18	11,690
Szeinberg, Aryeh	Hemolytic diseases peculiar to the Mediterranean area.	A-2740C2	6	10,000

Institution total, 4 grants, $51,231

STATE TOTAL, 49 grants ... 687,699

ITALY

BARI

Faculty of Medicine—University of Bari

Investigator	Project title	Grant No.	S.S.	Dollars
Fiore-Donati, L	Mast cell response in skin carcinogenesis of mouse	C-5439	8	5,250

Institution total, 1 grant, $5,250

CAGLIARI

Cagliari, University of

Investigator	Project title	Grant No.	S.S.	Dollars
Guido, Frizzi	Population genetics and radiogenetics in mosquitoes	E-3795	17	15,700

Institution total, 1 grant, $15,700

FLORENCE

Florence, University of

Investigator	Project title	Grant No.	S.S.	Dollars
Balduzzi, Piero	Studies on normal inhibitors of *S. E. polyoma* virus	C-5514	25	4,700

Institution total, 1 grant, $4,700

GENOA

Faculty of Medicine and Surgery—University of Genoa

Investigator	Project title	Grant No.	S.S.	Dollars
Bonsignore, Arturo	Carbohydrate metabolism in red cells in human favism.	H-4586C1	6	10,000
Salvidio, Emanuele	Susceptibility of Italians to drug-induced hemolysis	H-5682	6	15,500

Institution total, 2 grants, $25,500

4. Research Projects Grants

Investigator	Project title	Grant No.	S.S.	Dollars
ITALY—Continued				
MILAN				
Cancer Institute				
Della-Porta, G	Intestinal and mammary carcinogenesis in the hamster.	C-5557	12	$12,100
Institution total, 1 grant, $12,100				
Milan, University of				
Angostoni, Emilio	Thoraco-abdominal mechanics during PPB	RF-15	58	2.750
Polli, E. E	The role of DNA in malignancy	C-5544	25	50.000
Institution total, 2 grants, $52,750				
NAPLES				
Anton and Reinhard Dohrn Foundation				
Chieffi, Giovanni	Endocrinology of reproduction in elasmobranch fishes.	G-6455C1	18	9,720
Dohrn, Peter	Cell growth, division, metabolism, and related problems.	C-3402C4	27	10,000
Ghiretti, Francesco	Metallo-proteins in marine invertebrates	G-4845C4	2	11,000
Scarano, Eduardo	Nucleic acids, cell multiplication and development	C-5486	26	26,550
Institution total, 4 grants, $57,270				
Faculty of Medicine and Surgery—University of Naples				
Giordano, Carmelo	A therapy of renal disease based on urea toxicity	H-5773	8	11,017
Institution total, 1 grant, $11,017				
Naples, University of				
Nicolaus, Rodolfo A	Structure of melanins and melanogenesis	C-5220	2	14,700
Institution total, 1 grant, $14,700				
PALERMO				
Universita di Palermo				
Bonavita, Vincenzo	Evolution of dehydrogenases during neurogenesis	B-2917	26	9,140
Monroy, Alberto	Study of mitochondria in the sea urchin egg	G-6211C2	27	6,900
Institution total, 2 grants, $16,040				
PERUGIA				
Faculty of Medicine and Surgery—University of Perugia				
Severi, Lucio	A study of mammary cancer	C-3844C1S1	8	15,000
Do	do	C-3844C2	8	30,000
Institution total, 2 grants, $45,000				
PISA				
Pisa, University of				
Moruzzi, Giuseppe	EEG synchronization and sleep	B-2990	3	25,010
Institution total, 1 grant, $25,010				
ROME				
Center Against Cardio Vascular Diseases and Rheumatic Fever of Rome				
Findanza, Flaminio	International research—Epidemiology of heart disease.	H-4672C1	34	6,000
Institution total, 1 grant, $6,000				
Faculty of Medicine and Surgery—University of Rome				
Quintarelli, G	Histochemical changes in the developing tooth-germ.	D-1325	5	4,755
Do	Study of vascular tree of the periodontal membrane	D-1326	8	14,090
Institution total, 2 grants, $18,845				
Instituto Regina Elena per Lo Tumori				
Margottini, Mario	European Cooperative Breast Cancer Group	C-5006	12	7,935
Institution total, 1 grant, $7,935				

Investigator	Project title	Grant No.		S.S. Dollars
ITALY—Continued				
TURIN				
Institute of Oncology				
Anglesio, Enrico	European Cooperative Breast Cancer Group	C-4895	12	$7,705
Institution total, 1 grant, $7,705				
STATE TOTAL, 24 grants				325,522
JAMAICA				
MONA				
West Indies University, College of the				
Bras, Gerrit	Aetiology of veno-occlusive disease of the liver	A-4525	8	10,520
Institutional total, 1 grant, $10,520				
STATE TOTAL, 1 grant				10,520
JAPAN				
FUKUOKA				
Kyushu University				
Ueki, Showa	Effects of drugs on the limbic system	M-4476A	60	2,300
Institution total, 1 grant, $2,300				
KANAZAWA				
Nara Medical College				
Yasuzumi, G	Electron microscopy of nutritive cells and spermatids.	G-8327	27	7,400
Institution total, 1 grant, $7,400				
KURUME CITY				
Faculty of Medicine—Kurume University				
Nishi, Syogoro	Injection of ions into single ganglion cells	B-3141	9	4,099
Institution total, 1 grant, $4,099				
KYOTO				
Kyoto Prefectural University of Medicine				
Yonezawa, Takeshi	Myelinating process in nerve tissue culture	B-3173	8	23,690
Institution total, 1 grant, $23,690				
Kyoto University				
Hayaishi, Osamu	Studies on oxygenases	C-4222C2S1	26	13,000
Do	do	C-4222C3	26	10,000
Institution total, 2 grants, $23,000				
MISIMA				
National Institute of Genetics				
Iino, Tetsuo	Immunogenetics of *Salmonella*	E-2872C1	29	4,700
Oshima, Chozo	Study of deleterious genes in *Drosophila* populations.	G-7836	29	9,300
Institution total, 2 grants, $14,000				
NAGOYA				
Nagoya University				
Hirata, Yoshimasa	Organic chemical studies on animal and plant toxin.	G-7969	40	9,700
Oosawa, Fumio	Physical chemistry of actin	A-4534	1	23,568
Institution total, 2 grants, $33,268				

Investigator	Project title	Grant No.	S.S.	Dollars
JAPAN—Continued				
OSAKA				
Faculty of Medicine—Osaka University				
Donomae, Imasato	Epidemiology and pathology of arteriosclerosis—Japan.	H-4402C1	8	$10,000
Kawamata, Junichi	Studies on experimental chemotherapy of cancer	C-5075	12	16,000
Institution total, 2 grants, $26,000				
Faculty of Pharmacy—Osaka University				
Hano, Kotobuki	Anticancer testing of the Far Eastern plant products.	C-5257	12	13,340
Institution total, 1 grant, $13,340				
Osaka University				
Kurahashi, Kiyoshi	Studies on enzymes of galactose metabolism	A-4600	2	24,290
Miyaji, Toru	Hepatoma and cirrhosis in Japan	C-3481C3	8	4.000
Nomura, Masayasu	Role of ribonucleic acid in phage multiplication	E-3809	29	61,881
Okunuki, Kazuo	Crystalline cytochrome C from various sources	G-5871C2	26	2,898
Institution total, 4 grants, $93,069				
Polytechnic Institute, Osaka City University				
Matsuura, Teruo	Model reactions for the biosynthesis of thyroxine	A-3706C1	18	8,682
Institution total, 1 grant, $8,682				
SAPPORO				
Research Institute for Catalysis Hokkaido University				
Tonomura, Yuji	Molecular mechanism of muscle contraction	A-4233	1	10,095
Institution total, 1 grant, $10,095				
SENDAI				
Tohoku University				
Segi, Mitsuo	Statistical study of Cancer morbidity in Miyagi Prefecture.	C-9618C2	38	15.000
Institution total, 1 grant, $15,000				
TOKYO				
Cancer Institute				
Naora, Hiroto	Studies on physiology of cancer cell	C-5275	27	15,807
Institution total, 1 grant, $15,807				
Central Laboratories for Experimental Animals				
Ando, Koji	Supply of mice and pellets for cancer research	C-5089	29	67,480
Institution total, 1 grant, $67,480				
Faculty of Agriculture—University of Tokyo				
Aruga, Hisao	Induction and interference of viruses in insects	E-3967	17	8,550
Kono, Tetsuro	Properties of isolated muscle cell membrane	A-5006	26	10,003
Institution total, 2 grants, $18,553				
Faculty of Medicine—Keio University				
Saito, Shoji	Gaba, acetylchlorine, and brain function	B-3181	14	2,044
Institution total, 1 grant, $2,044				
Faculty of Science—University of Tokyo				
Terayama, Hiroshi	Interaction between carcinogen and cellular component.	C-5246	12	7,245
Institution total, 1 grant, $7,245				
Institute of Applied Microbiology—University of Tokyo				
Umezawa, Hamao	Studies on antitumor antibiotics	C-5082	12	40,400
Institution total, 1 grant, $40,400				

Investigator	Project title	Grant No.	S.S.	Dollars
JAPAN—Continued				
TOKYO—Continued				
Institute of Public Health				
Oshima, Tomoo	Larval nematodiases in Japan	RF-9	58	$2,875
Institution total, 1 grant, $2,875				
Japanese Association of Medical Sciences				
Okinaka, Shigeo	Epidemiologic survey of selected neurologic disorders.	B-2386C2	41	7,190
Institution total, 1 grant, $7,190				
Kitasato Institute for Infectious Diseases				
Hata, Toju	Isolation and screening of anticancer antibiotics	C-5085	12	35,862
Institution total, 1 grant, $35,862				
Medical Institute of Sasaki Foundation				
Yoshida, Tomizo	Ascites tumor system for chemotherapy screening	C-2799C5	12	9,500
Institution total, 1 grant, $9,500				
National Institute of Health				
Ishizaka, Kimishige	Immune mechanism of hypersensitivity	E-3308C1	13	3,000
Tagaya, Isamu	Studies on a mutant of dermovaccinia virus	E-3970	25	5,223
Institution total, 2 grants, $8,223				
Nihon Kiseichu Jobokai				
Sasa, Manabu	Experimental studies on filariasis control	E-3328R1	17	15,000
Institution total, 1 grant, $15,000				
Showa Medical College				
Sugiura, Saburo	Studies on schistosomiasis	E-2459C2	17	5,750
Institution total, 1 grant, $5,750				
Takasas Clinic, University of Tokyo School of Medicine				
Tasaka, Dadstada	Early diagnosis of stomach cancer by gastrocamera	C-9772	8	10,000
Institution total, 1 grant, $10,000				
Tokugawa Institute for Biological Research				
Iwamura, Tatsuichi	Nucleic acids and their metabolism in *Chlorella*	G-7601	27	23,690
Institution total, 1 grant, $23,690				
Tokyo Medical and Dental University				
Katsuki, Yasuji	Dip cone technic and nerve cells	B-2697	9	10,000
Shimamoto, Takio	Arteriosclerosis under low fat diet	H-5196R1	34	27,383
Institution total, 2 grants, $37,383				
Tokyo, University of				
Ebashi, Setsuro	ATP-linked calcium binding of sarcoplasmic reticulum.	A-4810	1	8,520
Kobayashi, Hideshi	Biochemical research on neurosecretion	A-3678C1	18	7,027
Institution total, 2 grants, $15,550				
TSU				
MIE Prefectural University				
Kosaki, Takekazu	Studies on malignolipin, a phospholipid of cancers	C-4795C1	12	11,500
Institution total, 1 grant, $11,500				
YOKOHAMA				
Yokohama City University				
Yoshino, Kamesaburo	Herpes virus infection of the egg chorioallantois	E-4247	25	3,583
Do	Production of rabies vaccine with one-day eggs	E-4248	25	6,049
Institution total, 2 grants, $9,632				
STATE TOTAL, 44 grants				617,624

4. Research Projects Grants

Investigator	Project title	Grant No.		S.S. Dollars
KOREA				
SEOUL				
Seoul National University				
Kim, Jae N.	Diabetes and pregnancy	A-3764C1	33	$8,788
Institution total, 1 grant, $8,788				
Yonsei University School of Medicine				
Lee, Woo C.	A significance of myocardial catecholamines	H-5264C1	14	5,405
Osborn, John J.	Circulatory physiology after cardiac defect closure	H-5265S1	19	15,525
Institution total, 2 grants, $20,930				
STATE TOTAL, 3 grants				29,718
LEBANON				
BEIRUT				
American University of Beirut				
Al-Khalidi, Usama	Guanine metabolism in *Erymothecium ashby II*	E-3773	2	15,554
Cowan, James W.	Nutritive value of Middle Eastern foods	A-4562	34	12,052
Farah, Fuad S.	Allergic skin reactions of wheal and erythema type	E-2910C1	13	9,200
Garabedian, Garabed	Laboratory studies of aseptic meningitis in Lebanon	E-3812	25	11,850
Hanania, George I.	Heme-linked effects in hemoglobin reactions	H-4994C1	1	7,820
Harfouche, Jamal K.	Calorie and protein malnutrition in Lebanese infants.	A-4574	34	29,693
Khachadurian, A. K.	Metabolism of adipose tissue in the fat tail sheep	A-4270	33	7,541
Schawabe, Calvin W.	Host-parasite relationships in echinococcosis	E-2205C3	17	13,800
Shahid, Munib	Hemoglobinopathies in the Middle East	G-8607	6	8,050
Shanklin, William M.	A histological study of neurosecretion in man	B-1701C3	27	4,473
Wilson, John L.	Cardiovascular disease in the Middle East	H-3671C2	19	5,865
Woodruff, Calvin W.	Etiologic factors in hypochromic anemia	A-4509C1	7	9,645
Institution total, 12 grants, $135,543				
STATE TOTAL, 12 grants				135,543
MEXICO				
MEXICO, D. F.				
Escuela Nacional de Ciencias Biologicas —Instituto Politecnio Nacional				
Hecht, Otto	Repellency of insecticides and other substances	E-3116C1	17	7,100
Institution total, 1 grant, $7,100				
Escuela Nacional de Odontologia—University of Mexico				
Hixon, Ernest H.	Oral function and dentofacial dimensions	D-1361	5	5,475
Institution total, 1 grant, $5,475				
Hospital Infantil				
Gomez, S. Federico	Infantile protein malnutrition	A-1520C3	34	25,000
Kumate-Rodriguez, J.	Metabolism of *Salmonella typhosa* antigens	E-4042	13	14,945
Ramos-Alvarez, M.	Viral and bacterial studies of infectious diarrhea	E-3162C1	24	34,650
Institution total, 3 grants, $74,595				
Instituto Nacional de la Nutricion				
Gual, Carlos	Biosynthesis of steroid hormones in abnormal tissues.	C-4639C1	18	13,800
Institution total, 1 grant, $13,800				
Mexico, University of				
Del Rio-Estrada	The biosynthesis of nicotinic acid by *Mycobacteria*	E-3815	2	11,786
Ramirez, Bernardo	Bat migration and relation to rabies dissemination	E-3890	17	46,278
Institution total, 2 grants, $58,046				

Investigator	Project title	Grant No.	S.S.	Dollars
MEXICO—Continued				
MEXICO, D. F.—Continued				
Unit of Pathology—University of Mexico				
Biagi, Francisco F.	Pathogenicity and serology of *E. histolytica*	E-3129C1	17	$6,900
Institution total, 1 grant, $6,900				
MORELIA				
Universidad Michoacana de San Nicolas de Hidalgo				
Alvizouri, Mario	Experimental cervical cancer—hormonal influences.	C-5024C1	8	2,520
Institution total, 1 grant, $2,520				
STATE TOTAL, 10 grants				168,436
NETHERLANDS				
AERDENHOUT				
Federation Dentaire Internationale				
Pedersen, P. O.	Dental lexicon in five languages	D-1447	96	4,025
Stones, H. H.	Transactions 13th international dental congress	D-1448	96	10,143
Institution total, 2 grants, $14,168				
AMSTERDAM				
Blood Transfusion Central Laboratory—Netherlands Red Cross				
Pondman, K. W.	Substances of immunological importance in human milk.	E-3951	13	15,460
Institution total, 1 grant, $15,460				
Central Institute for Brain Research				
Schade, Johannes P.	Surface area and patterns of cortical neurons	B-3048	9	4,750
Institution total, 1 grant, $4,750				
Excerpta Medica Foundation				
Woerdeman, M. W.	Continuation of the cancer section of Excerpta Medica.	C-9346C7	96	4,790
Do	To publish translations of Japanese medical abstracts.	G-7410C1	96	90,850
Do	Medical abstract in human developmental biology field.	G-7735	96	28,750
Do	Publication of Cardiovascular Abstracting Journal.	H-2898C4	97	14,950
Do	Publication of Gerontology Abstracting Journal	H-3621C3	97	8,625
Do	do	M-2373C3	97	8,625
Institution total, 6 grants, $156,590				
Laboratory of Physiological Chemistry—University of Amsterdam				
Slater, Edward C.	Respiratory inhibitors and uncoupling agents	G-6569C1	14	6,647
Institution total, 1 grant, $6,647				
Netherlands Cancer Institute				
Muhlbock, O.	Hormonal genesis of mammary cancer	C-3431C3	27	26,700
Institution total, 1 grant, $26,700				
LEIDEN				
Leiden, University of				
Bottcher, C. J.	Atherosclerosis and thrombosis lipid investigations.	H-5766	33	24,000
Institution total, 1 grant, $24,000				
NYMEGEN				
Roomsch Katholieke Universiteit				
Zilliken, F. W.	Novel amino sugars from bacteria	E-3987	2	15,000
Institution total, 1 grant, $15,000				

NETHERLANDS—Continued

ROTTERDAM

Rotterdamsch Radio Therapeutisch Instituut

Investigator	Project title	Grant No.	S.S.	Dollars
Van Gilse, H. A	European Cooperative Breast Cancer Group	C-5185	56	$3,100
Institution total, 1 grant, $3,100				

THE HAGUE

Netherlands Nutrition Council

Investigator	Project title	Grant No.	S.S.	Dollars
Van Buchem, Frans	A field survey on coronary heart disease	H-5471	15	6,260
Institution total, 1 grant, $6,260				
STATE TOTAL, 16 grants				272,675

NEW CALEDONIA

NOUMEA

South Pacific Commission

Investigator	Project title	Grant No.	S.S.	Dollars
Smith, T. R	Urbanization Advisory Committee meeting	G-8236	96	6,920
Institution total, 1 grant, $6,920				
STATE TOTAL, 1 grant				6,920

NEW ZEALAND

CHRISTCHURCH

North Canterbury Hospital Board

Investigator	Project title	Grant No.	S.S.	Dollars
Gunz, Frederick W	Incidence and etiology of leukemia in New Zealand	C-3707C3	6	5,600
Institution total, 1 grant, $5,600				

DUNEDIN

Otago, University of

Investigator	Project title	Grant No.	S.S.	Dollars
Ludwig, T. G	New Zealand dental caries and soil relationship	D-965C1	5	8,670
Shaw, Douglas R	Bacterial polymer synthesis and polyol metabolism	E-3548	26	3,918
Institution total, 2 grants, $12,588				
STATE TOTAL, 3 grants				18,188

NORWAY

OSLO

Anatomical Institute—Oslo University

Investigator	Project title	Grant No.	S.S.	Dollars
Blackstad, Theodor	Electron microscopy of central nervous system	B-2215C1	27	6,600
Institution total, 1 grant, $6,600				

Institute for Social Research

Investigator	Project title	Grant No.	S.S.	Dollars
Aubert, Vilhelm	A study of isolated families and communities	M-4547	23	13,225
Institution total, 1 grant, $13,225				

Institute of Human Genetics—Oslo University

Investigator	Project title	Grant No.	S.S.	Dollars
Mohr, Jan	Linkage and mutation in man	G-6842C1	29	9,775
Institution total, 1 grant, $9,775				

Norsk Hydros Institute for Cancer Research

Investigator	Project title	Grant No.	S.S.	Dollars
Pihl, Alexander	Enzymatic and EPR studies of radiation damage	A-4278	31	18,745
Institution total, 1 grant, $18,745				

NORWAY—Continued

OSLO—Continued

Norwegian Institute of Dental Research

Investigator	Project title	Grant No.	S.S.	Dollars
Morch, Tormod	Experiments on changes in topically treated enamel.	D-901C2	5	$12,401

Institution total, 1 grant, $12,401

Surgical Department A of the University Hospital

Investigator	Project title	Grant No.	S.S.	Dollars
Efskind, Leif	Detection and culture of tumor cells in lymph and blood.	C-9653C1	56	10,000

Institution total, 6 grants, $10,000

STATE TOTAL, 11 grants — 70,746

PAKISTAN

DACCA

Dacca University

Investigator	Project title	Grant No.	S.S.	Dollars
Ahmad, Kamaluddin	Antibiotics and plant medicinals of Pakistan	E-3913	40	24,000

Institution total, 1 grant, $24,000

STATE TOTAL, 1 grant — 24,000

PERU

LIMA

Brain Research Center, Peruvian Armed Forces

Investigator	Project title	Grant No.	S.S.	Dollars
Alzamora-Castro, V	Cardiovascular studies at high altitude	H-6740	4	24,867

Institution total, 1 grant, $24,867

Universidad Nacional Mayor De San Marcos

Investigator	Project title	Grant No.	S.S.	Dollars
Arias-Stella, Javie	Infant hearts and pulmonary vessels at high altitude.	H-4787C1	8	13,600
Garcia-Caceres, U	Tubular alterations in glomerulonephritis	H-5692	8	14,200
Hurtado, Alberto	Therapy of Pseudomonas infections	G-3123C10	19	28,078
Do	do	G-3123C10S	19	8,830
Do	Process of aging at sea level and at high altitudes	G-8576	96	122,960
Morichaves, Pablo	The effect of high altitude on neoplastic growth	C-3338C3	8	18,009

Institution total, 6 grants, $205,677

STATE TOTAL, 7 grants — 230,544

PHILIPPINES

QUEZON CITY

Philippines, University of The

Investigator	Project title	Grant No.	S.S.	Dollars
Velasquez, Carmen C	Parasites of Philippine food fishes	E-2575C2	17	575
Yogore, M. G. Jr	Immunology and serology of *Schistosomiasis japonica*.	RF-19	58	2,875

Institution total, 2 grants, $3,450

STATE TOTAL, 2 grants — 3,450

PORTUGAL

LISBON

Faculty of Medicine—University of Lisbon

Investigator	Project title	Grant No.	S.S.	Dollars
Horta, Jorge	Research on the effect of thorotrast	C-4864C1	8	12,283
Janz, Guilherme J	Cancer rates survey in Luanda, Angola	C-5331	15	25,100

Institution total, 2 grants, $37,383

4. Research Projects Grants

PORTUGAL—Continued

OPORTO

Faculdade de Farmacia—Universidade do Porto

Investigator	Project title	Grant No.		S.S. Dollars
Guerra, Francisco	Swelling and membranes—brain and liver mitochondria.	G-8138	26	$12,995

Institution total, 1 grant, $12,995

STATE TOTAL, 3 grants — 50,378

REPUBLIC OF CONGO (LEOPOLDVILLE)

BUKAVU

Institut Pour la Recherche Scientifique en Afrique Centrale

Investigator	Project title	Grant No.		S.S. Dollars
Demaeyer, Edouard	Malnutrition in African children	A-3617C1	34	13,800

Institution total, 1 grant, $13,800

STANLEYVILLE

Laboratoire Medical Provincial

Investigator	Project title	Grant No.		S.S. Dollars
Courtois, Ghislain	Capture and camp for experiments on chimpanzees	H-5207	82	27 951

Institution total, 1 grant, $27,951.

STATE TOTAL, 2 grants — 41,751

REPUBLIC OF SOUTH AFRICA

CAPETOWN

Cape Town, University of

Investigator	Project title	Grant No.		S.S. Dollars
Brock, John F	Protein malnutrition, kwashiorkor, and amino acids.	A-3995C1	34	28,750
Bronte-Stewart, B	Dietary fat, serum cholesterol and heart disease	H-3316C3	34	28,750
Do	do	H-3316C3S1	34	5,175
Polson, A	Structure of African and other viruses	E-4044	25	39,248

Institution total, 4 grants, $101,923

DURBAN

Natal University

Investigator	Project title	Grant No.		S.S. Dollars
Hathorn, M. K	Human and experimental nutritional siderosis	A-3532C1	34	8,250
Wainwright, John	Atherosclerosis in certain races	H-5445	8	4,830

Institution total, 2 grants, $13,080

JOHANNESBURG

South African Institute for Medical Research

Investigator	Project title	Grant No.		S.S. Dollars
Bernstein, Ralph E	Red cell metabolic defects in drug-dietary anemias	H-5448	34	7,360
Walker, Alexander R	Studies on coronary artery disease among the Bantu.	H-4244C1	97	27,280

Institution total, 2 grants, $34,640

Witwatersrand, University of

Investigator	Project title	Grant No.		S.S. Dollars
Bothwell, Thomas H	Iron overload in the Bantu	A-4912	6	15,000
Getz, Godfrey S	Function and biosynthesis of unsaturated fatty acids.	A-3991C1	33	3,225

Institution total, 2 grants, $18,225

PRETORIA

South African Council for Scientific and Industrial Research

Investigator	Project title	Grant No.		S.S. Dollars
Elsdondew, R	Factors determining invasiveness in *E. histolytica*	E-1592C4	17	25,000

Institution total, 1 grant, $25,000

STATE TOTAL, 11 grants — 192,868

SPAIN

GRANADA

Faculty of Medicine—University of Granada

Investigator	Project title	Grant No.	S.S.	Dollars
Reinoso-Suarez, F	*Brachium-conjunctivum N. pontis oralis* and EEG	B-3208	3	$3,800

Institution total, 1 grant, $3,800

MADRID

Instituto Gregorio Maranon

Investigator	Project title	Grant No.	S.S.	Dollars
Sols, Alberto	Early steps of glycolysis	G-8041	2	15,100

Institution total, 1 grant, $15,100

STATE TOTAL, 2 grants — 18,900

SWEDEN

GOTHENBURG

Faculty of Medicine—University of Gothenburg

Investigator	Project title	Grant No.	S.S.	Dollars
Abrahamsson, Sixten	Molecular arrangement in complex lipids	A-4006C1	1	27,821
Folkow, Bjorn U	Neurohormonal control of the vascular bed	H-5675	9	9,000
Do	do	H-5675S1	9	470

Institution total, 3 grants, $37,291

Gothenburg, University of

Investigator	Project title	Grant No.	S.S.	Dollars
Branemark, P	Studies in bone marrow function	H-5724	6	25,878
Engstrom, Hans	Effect of high-intensity noise on inner ear	B-2878	30	10,000
Lindell, Sven-Eric	Histamine metabolism in man	E-3379C1	22	10,700
Zetterstrom, Rolf	Acceptor RNA and its role in protein synthesis	A-3989C1	7	9,085

Institution total, 4 grants, $55,663

LUND

Institute of Physiology—University of Lund

Investigator	Project title	Grant No.	S.S.	Dollars
Kahlson, George S	Histamine formation in foetal and regenerative growth.	H-4961C1	7	6,000

Institution total, 1 grant, $6,000

Lund, University of

Investigator	Project title	Grant No.	S.S.	Dollars
Bauer, Goran C	Calcium kinetics in metabolic bone disease	D-1452	33	26,500
Blomstrand, Rolf L	Study on lipid metabolism related to atherosclerosis.	H-5902	33	9,132
Borgstrom, Bengt	Metabolism of exogeneous and endogeneous lipids	H-5302	33	61,550
Hillarp, Nils-Ake	Mechanisms of storage and release of catecholamines.	B-2854	27	10,000
Liden, Kurt V	Whole body counting of radioactivity in humans	C-5515	31	28,020
Thesleff, Stephen W	Innervation and the chemical sensitivity of muscle.	B-2646	14	13,600

Institution total, 6 grants, $147,802

STOCKHOLM

Immunological Research Laboratory

Investigator	Project title	Grant No.	S.S.	Dollars
Bjorklund, Knut B	Immune lysis of human cancer cells	C-4587C1	25	38,300

Institution total, 1 grant, $38,300

Institute of Pathology—Karolinska Institutet

Investigator	Project title	Grant No.	S.S.	Dollars
Ringertz, Nils O	Study on polyoma virus tumors	C-4846	25	20,000

Institution total, 1 grant, $20,000

Isotope Laboratory of Cardiovascular Clinic, South Hospital

Investigator	Project title	Grant No.	S.S.	Dollars
Nylin, Gustave	Studies on cerebral blood flow with labeled red cells.	H-3219C2	9	27,149

Institution total, 1 grant, $27,149

Investigator	Project title	Grant No.	S.S.	Dollars
SWEDEN—Continued				
STOCKHOLM—Continued				
Karolinska Institutet				
Bellman, Sven E	Deteriorative and regenerative vascular responses	H-4865	4	$17,721
Bergstrom, Sune	Metabolism of steroids and bile acids	H-2842C4	33	55,000
Caspersson, Torbjor	Quantitative cytochemical studies of cell growth	C-4716C1	27	50,000
Do	Quantitative cytochemical studies of the cell	C-3082C4	1	30,000
Diczfalusy, E	Studies on the endocrinology of the placental barrier	A-2771C1	7	9,189
Engstrom, Arne	Biophysical studies of bone and teeth	D-700C3	1	6,000
Gustafsson, Bengt E	Rearing of a colony of germfree rats	A-1933C3	34	9,000
Do	do	A-1933C3S1	34	68,078
Heden, Carl-Goran	Pressure effects on nucleic acids *in vivo* and *in vitro*	C-5799	25	47,289
Jacobson, Bertil	Development and use of endoradiosonde technics	A-2338C2	22	11,500
Jorpes, J. E	Blood clotting factors	H-4295C1	6	14,700
Klein, Georg	Cytogenetics of variability in cancer cell populations	C-3700C3	29	20,000
Do	Viral tumorigenesis and cellular phenotype	C-4747C2	25	36,000
Malmgren, Berndt	Studies on pollen from ragweed	E-2903C1	13	12,000
Do	do	E-2903C1S1	13	3,485
Reichard, Peter	Pyrimidine synthesis in normal and neoplastic tissues.	C-4619C1	26	8,625
Thorsen, H. G	Stabilizers for erythrocyte suspension	H-4909	6	25,917
Uvnas, Borje	Physiological and pharmacological study—circulation.	H-6633	9	26,586
Do	Studies of acid lipid substance, SRS, in mast cells	A-4063C1	14	23,575
Westin, Bjorn E	Measurements of human ovarian blood flow	RF-14	58	2,500
Institution total, 20 grants, $477,165				
Konung Gustaf V's Forskningsinstitut				
Gemzell, Carl A	Purification of human growth hormone	A-2156C2	18	13,080
Institution total, 1 grant, $13,080				
Stockholm, University of				
Akerfeldt, Stig G	Biological significance of S-phosphorylated thiols	G-8206	2	8,245
Bostrom, Harry	Studies on ester sulfate compounds in tissues	A-2568C2	33	11,500
Do	Excretion of sulfate acceptors in metabolic disorders	A-4410	33	19,250
Hultin, Tore	Protein metabolism and tumor induction	C-5278	27	27,700
Institutional total, 4 grants, $66,695				
UPPSALA				
Uppsala, University of				
Barany, Ernst H	Physiology and pharmacology of ocular pressure	B-3060	30	33,330
Boman, Hans G	Enzymic structure analysis of transfer RNA	G-7576	2	14,000
Fredga, Arne	Synthesis of factor 3-like selenium compounds	A-4317	14	7,070
Fries, Nils	Growth studies in the thallotron	G-8157	27	32,800
Malmstrom, Bo G	Structure and activity of metal enzymes	G-6542C1	2	4,600
Obrink, Karl J	Ion movements in beating hearts	H-5346	9	5,750
Institution total, 6 grants, $97,550				
INDIVIDUAL GRANT				
Lundegardh, H. G	Salt effect on respiration	G-7737	27	9,750
Do	do	G-7737S1	27	15,000
Institution total, 2 grants, $24,750				
STATE TOTAL, 50 grants				1,011,445

Investigator	Project title	Grant No.	S.S.	Dollars
SWITZERLAND				
BERN				
Bern, University of				
De Weck, Alain L.	Studies on penicillin hypersensitivity	RF-5	58	$2,600
Fankhauser, Rudolph	A study of spontaneous nervous disease in animals	B-1916C2	3	4,500
Institution total, 2 grants, $7,100				
GENEVA				
World Health Organization				
Candau, Marcolino G.	Bilharziasis research	E-3717	17	78,940
Do	Insecticide resistance and vector control	G-7542	35	204,000
Institution total, 2 grants, $282,940				
LAUSANNE				
Institut d Anathomic Pathologique				
Rabinowicz, T.	Prenatal development of the human cerebral cortex.	M-1561C3	8	12,650
Institution total, 1 grant, $12,650				
Lausanne, University of				
Fleisch, Herbert A.	Activation and inhibition in calcification	A-4909	22	11,000
Institution total, 1 grant, $11,000				
ZURICH				
Swiss Federal Institute of Technology				
Keller, Robert J	Basic mechanisms of shock propagation	E-2855R1	13	8,000
Institution total, 1 grant, $8,000				
University Hospital—University of Zurich				
Martz, George	European Cooperative Breast Cancer Group	C-4892	12	8,280
Institution total, 1 grant, $8,280				
STATE TOTAL, 8 grants				329,970
TANGANYIKA				
MWANZA				
East African Institute for Medical Research				
McLaren, Donald S.	Nutritional ophthalmology research in East Africa.	B-2190C1	34	24,035
Institution total, 1 grant, $24,035				
STATE TOTAL, 1 grant				24,035
THAILAND				
BANGKOK				
University of Medical Sciences				
Bhamarapravati, N.	Application of fluorescent antibody to tissue section.	E-3974	25	5,900
Buri, Rachit	Hemodialysis in treatment of acute glomerulonephritis.	RF-11	58	2,500
Piyaratn, Prapont	The pathology of Bangkok epidemic hemorrhagic fever.	E-2890C1	25	7,245
Institution total, 3 grants, $15,645				
STATE TOTAL, 3 grants				15,645

Investigator	Project title	Grant No.	S.S.	Dollars
TURKEY				
ANKARA				
Research Institute of Child Health				
Dogramaci, Ihsan A	Study of toxic cutaneous porphyria in Turkey	A-4436	6	$14,350
Institution total, 1 grant, $14,350				
STATE TOTAL, 1 grant				14,350
UNITED KINGDOM				
ABERDEEN				
Marischal College—University of Aberdeen				
Kosterlitz, Hans W	Mechanism of action of morphine and other analgesics.	B-3026	14	11,421
Simkin, Julius L	Biosynthesis of soluble proteins by microsomes	A-4346	26	13,000
Institution total, 2 grants, $24,421				
BIRMINGHAM				
Birmingham University				
Frazer, Alastair C	Pathogenetic factors in malabsorption syndromes	A-4737	34	56,290
Do	Studies on the biological effects of food additives	G-6732C1	35	27,320
Do	do	G-6732C1S1	35	8,118
Watts, George T	Collagen and mucopolysaccharides in healing wounds.	H-5772	19	8,450
Institution total, 4 grants, $100,178				
CAMBRIDGE				
Cambridge University				
Coombs, Robin R	General immunological studies	E-3348C1	13	7,937
Cross, Barry A	Cell activity in the hypothalamo-hypophysial complex.	B-2958	9	15,000
Rushton, William A	The nature of the visual process in the retina	B-3014	30	10,900
Institution total, 3 grants, $33,837				
Virus Research Unit—Agricultural Research Council				
Markham, Roy	Virus and nucleic acid structure	E-3400C1	2	28,150
Institution total, 1 grant, $28,150				
CARDIFF				
University College of South Wales and Monmouthshire—University of Wales				
Dodgson, K. S	Metabolism of sulphated mucopolysaccharides	A-1982C2	26	4,584
Institution total, 1 grant, $4,584				
EDINBURGH				
Edinburgh University				
Gardner, Dugald L	The pathogenesis of hypersensitive vascular disease.	H-5173	8	14,881
Institution total, 1 grant, $14,881				
Institute of Animal Genetics—University of Edinburgh				
Auerbach, Charlotte	Action of chemical mutagens on micro-organisms	G-6237C2	29	7,000
Institution total, 1 grant, $7,000				
GLASGOW				
Glasgow, University of				
Pontecorvo, Guido	Genetic analysis of man based on mitotic segregation.	G-5804C2	29	27,000
Institution total, 1 grant, $27,000				

UNITED KINGDOM—Continued

LEEDS

Leeds, University of

Investigator	Project title	Grant No.	S.S.	Dollars
Astbury, William T.	Structure of biological macromolecules and tissues	G-7399C1	1	$24,100
Pautard, Frederick	Studies of biological calcification	D-1346	27	9,680

Institution total, 2 grants, $33,780

LIVERPOOL

Liverpool School of Tropical Medicine

Investigator	Project title	Grant No.	S.S.	Dollars
Augustin, Rosa	Allergy versus antigens—isolation and standardization.	E-3961	13	20,000

Institution total, 1 grant, $20,000

Liverpool, University of

Investigator	Project title	Grant No.	S.S.	Dollars
Gregory, Roderic A.	Gastric secretory stimulation and inhibition	A-4786	22	6,000

Institution total, 1 grant, $6,000

LONDON

Birkbeck College—University of London

Investigator	Project title	Grant No.	S.S.	Dollars
Klug, Aaron	Molecular structure of viruses	E-1772C2S1	1	1,372

Institution total, 1 grant, $1,372

British Museum

Investigator	Project title	Grant No.	S.S.	Dollars
Wright, Christopher	Intermediate host-parasitic relations in *Schistosoma*.	E-3650	17	22,000

Institution total, 1 grant, $22,000

Charing Cross Hospital Medical School—University of London

Investigator	Project title	Grant No.	S.S.	Dollars
De Wardener, H.	Control of urinary salt excretions	A-5008	04	11,210

Institution total, 1 grant, $11,210

Chester Beatty Research Institute

Investigator	Project title	Grant No.	S.S.	Dollars
Haddow, Alexander	Cancer chemotherapy and carcinogenesis	C-3188C4	12	150,000

Institution total, 1 grant, $150,000

Guys Hospital Medical School-University of London

Investigator	Project title	Grant No.	S.S.	Dollars
Haslewood, Geoffrey	A study of vertebrate bile salts	A-4303	33	14,206

Institution total, 1 grant, $14,206

London Hospital Medical College and Dental School—University of London

Investigator	Project title	Grant No.	S.S.	Dollars
Carbonell, Virginia	Dentition of early British skulls, 700–1800 A.D.	D-1240	5	9,000

Institution total, 1 grant, $9,000

London School of Hygiene and Tropical Medicine—University of London

Investigator	Project title	Grant No.	S.S.	Dollars
Reid, Donald D.	U.S.-U.K. joint studies in cardiorespiratory disease.	H-4775S1	56	20,000

Institution total, 1 grant, $20,000

London, University of

Investigator	Project title	Grant No.	S.S.	Dollars
Amoroso, Emmanuel C.	Electron microscopy of comparative morphologic problems.	G-6489C1	27	8,625
Dutton, Richard W.	Biochemical mechanism of antibody formation	E-2911C1	13	13,211
Eysenck, Hans J.	Effects of stimulant and depressant drugs	M-2612C2	51	9,660
Zaimis, Eleanor	On the action of anticholinesterase drugs	B-2474R1	14	10,752

Institution total, 4 grants, $42,248

Royal Free Hospital School of Medicine—University of London

Investigator	Project title	Grant No.	S.S.	Dollars
Dowman, Charles B.	Autonomic and somatic reflexes of splanchnic origin.	B-3171	9	11,015
Sherlock, Sheila	Amine metabolism in liver disease	A-4267	22	16,800

Institution total, 2 grants, $27,815

Royal Institution of Great Britain

Investigator	Project title	Grant No.	S.S.	Dollars
Bragg, Lawrence	The structures of biological molecules	A-2791C2	1	25,300

Institution total, 1 grant, $25,300

Investigator	Project title	Grant No.	S.S.	Dollars
UNITED KINGDOM—Continued				
LONDON—Continued				
St. Bartholomew's Hospital Medical College—University of London				
Bourne, Gordon L	Electronmicroscopic study of human amnion	G-7124C1	7	$2,071
Institution total, 1 grant, $2,071				
St. George's Hospital Medical School—University of London				
McKissock, Wylie	Cooperative clinical study of aneurysms	B-2421C2	41	18,722
Do	Cerebrovascular accident research center	B-3138	19	48,000
Institution total, 2 grants, $66,722				
St. Mary's Hospital Medical School—University of London				
Neuberger, Albert	Structural and enzymological studies of glycoproteins.	G-8171	26	28,100
Institution total, 1 grant, $28,100				
University College—University of London				
Abercrombie, M	Control of cell locomotion in relation to malignancy	C-4847S1	27	465
Do	do	C-4847C1	27	12,775
Blest, A. D	Behavioral interaction and aging in saturniid moths.	G-7109C1	17	21,120
Medawar, Peter B	Nature of antigens responsible for homograft reaction.	E-3137C1	13	12,932
Do	do	E-3137C1S1	13	1,008
Penrose, L. S	Mapping of human genes by cell culture	G-6984C1	29	9,947
Schild, Heinz O	Psychotropic drugs and autonomic dysfunction	M-3561C1	51	20,764
Summerfield, Arthur	Psychopharmacology of learning, perception, and skill.	M-3313C1	51	23,614
Institution total, 8 grants, $102,625				
World Federation for Mental Health				
Soddy, K	International interprofessional study group—June 1961.	M-4998	96	47,150
Institution total, 1 grant, $47,150				
OXFORD				
Oxford, University of				
Clegg, Marguerite D	Irradiation of single cells by alpha-particle microbeams.	A-2508C2	31	7,050
Krebs, Hans A	Aspects of intermediary metabolism	A-3369C1	26	30,600
Pirenne, M. H	Vision and light quanta	B-1810C2	1	11,550
Stewart, Alice M	The survey approach to problems of cancer prevalence.	C-5392	15	14,784
Truelove, Sidney C	Motility in health and disease	A-5123	22	29,875
Whitehouse, Michael	Cholesterol catabolism in mammalian tissues	H-5472	26	6,325
Institution total, 6 grants, $100,184				
Sir William Dunn School of Pathology—Oxford University				
Florey, Howard W	The occurrence of atherosclerosis in aging pigs	H-5932	97	3,450
Institution total, 1 grant, $3,450				
READING				
National Institute for Research in Dairying				
Scott-Blair, G. W	Rheology of blood in flow and coagulation	H-5732	6	14,317
Institution total, 1 grant, $14,317				
Reading, University of				
Ditchburn, R. W	Eye movements in relation to visual perception	B-1233C4	30	12,650
Institution total, 1 grant, $12,650				

UNITED KINGDOM—Continued

TWICKENHAM

General Practitioner Research Group

Investigator	Project title	Grant No.	S.S.	Dollars
Wheatley, David P.	Use of psychotherapeutic drugs in general practice.	M-4135	51	$5,000

Institution total, 1 grant, $5,000

INDIVIDUAL GRANTS

Investigator	Project title	Grant No.	S.S.	Dollars
Hill, William C.	Anatomical atlas of the rhesus monkey	G-7687	82	7,080
Hunter, Richard A.	Anthology of British psychiatry	M-4721	93	8,400
Weiner, Joseph S.	Genetic studies of several racial groups	G-7297	29	6,050

Institution total, 3 grants, $21,530

STATE TOTAL, 58 grants — 1,026,781

URUGUAY

MONTEVIDEO

Instituto de Investigacion de Ciencias Biologicas

Investigator	Project title	Grant No.	S.S.	Dollars
Sotelo, J. R.	Study on the fine structure of meiotic chromosomes.	G-8337	27	26,190

Institution total, 1 grant, $26,190

University of the Republic

Investigator	Project title	Grant No.	S.S.	Dollars
Di Bello, Raul	Diagnosis and clinical forms cardiac echinococcosis.	E-3612	17	2,000
Sica-Blanco, Y.	Physiology and pharmacology of milk ejection in women.	A-5070	7	15,200
Temesio, Nellye	Hemolytic anemias in children	RF-12	58	2,875

Institution total, 3 grants, $20,075

STATE TOTAL, 4 grants — 46,265

WEST GERMANY

GOTTINGEN

Faculty of Medicine, University of Gottingen

Investigator	Project title	Grant No.	S.S.	Dollars
Beuren, Alois J.	Metabolism of the normothermic and hypothermic heart.	H-5582	4	10,879

Institution total, 1 grant, $10,879

Gottingen, University of

Investigator	Project title	Grant No.	S.S.	Dollars
Thurau, Klaus W.	Renal hemodynamics in unanesthetized dogs	RF-2	58	2,875

Institution total, 1 grant, $2,875

HAMBURG

Second Medical Clinic, Hamburg University

Investigator	Project title	Grant No.	S.S.	Dollars
Nowakowski, Henryk	European Cooperative Breast Cancer Group	C-4893	12	7,920

Institutional total, 1 grant, $7,920

HEIDELBERG

Heidelberg, University of

Investigator	Project title	Grant No.	S.S.	Dollars
Dengler, Hans J.	Endocrine effects on catecholamines	RF-13	58	2,500

Institution total, 1 grant, $2,500

Institut für Experimentale Krebsforschung—University of Heidelberg

Investigator	Project title	Grant No.	S.S.	Dollars
Lettre, Hans H.	Sterol derivatives in cancer chemotherapy	C-4821C1	40	13,100

Institution total, 1 grant, $13,100

4. *Research Projects Grants*

Investigator	Project title	Grant No.	S.S.	Dollars
UNITED KINGDOM—Continued				
MARBURG				
Marburg, University of				
Deicher, Helmuth R.	Antibodies in *Lupus erythematosus* and other diseases.	A-4450	22	$4,050
Institution total, 1 grant, $4,050				
TUBINGEN				
Max Planck Institute for Virus Research				
Schramm, Gerhard F.	Function of nucleic acid in virus synthesis	C-4601C1	25	12,650
Institution total, 1 grant, $12,650				
STATE TOTAL, 7 grants				53,974
YUGOSLAVIA				
ZAGREB				
Central Institute of Hygiene				
Buzina, Ratko	Epidemiology of heart disease in Yugoslavia	H-4774C1	34	5,000
Institution total, 1 grant, $5,000				
STATE TOTAL, 1 grant				5,000

Mr. FOGARTY. Can you give us two or three examples now of some of the benefits derived from the expenditures in these advanced countries?

FOREIGN SCIENTISTS' CONTRIBUTION TO MEDICINE

Dr. CUMMINGS. I would like to respond by saying every time I face a patient I feel that I have with me the wisdom and experience of men like Pasteur, Koch, Osler, and Paré, who did research before we had grant programs. Our foreign grants program is so young that I think it would be very difficult to single out——

Mr. FOGARTY. At this point in the record I wish you would tell us who these men were, and their contributions to the science of medicine.

Dr. CUMMINGS. Yes, I would be very happy to. In my judgment, modern American medicine stems from our heritage of science and medicine abroad. Thus, for example, the discoveries of Lister in England set for new principles of germicidal and disinfectant actions—sterility, if you will.

Paré, a French surgeon, contributed the principles of modern surgery. Koch and Pasteur, in Germany and France, respectively, introduced the concept of agents transmitting disease by isolating and identifying bacteria associated with infections. Our clinical prowess in large measure, I think, stems from the excellent descriptions of disease which came from men like Addison and Osler, who taught us to be observant and described clinical phenomena in a way which we may still pass on to our students.

In essence, then, I think the scientific method as well as clinical method has come from abroad. Today I believe we are in a position to reciprocate.

INFLUENCE OF STRESS ON DISEASE

We are now supporting, for example, the research of Nobel laureates in medicine. I think we would be more pleased had we been able to support those foreign scientists before they were Nobel laureates. Nonetheless, even in the young history of the NIH foreign program, we have supported the research of Dr. Selye in Canada, who as you know, introduced modern concepts of stress influencing the development and the course of disease.

Mr. FOGARTY. What kind of disease?

Dr. CUMMINGS. I think, sir, that today stress is blamed for having some influence on many forms of organic and mental illness. The stress concept goes hand in hand with the development of knowledge about adrenal hormones, which we use to treat certain diseases. Paradoxically, firing the adrenal by stress reduces resistance to many infections.

HEART DISEASE

Mr. FOGARTY. One of the reasons I asked about that is that there seems to be some difference of opinion regarding the role of stress and strain in heart trouble. Did I not read yesterday or in this mornings' paper where some group of doctors just reported that stress does play some part in heart failures according to their studies?

Dr. Terry. There are many aspects of cardiovascular disease in which stress plays a part.

Dr. Shannon. Selye's argument is that stress provides the backdrop against which acute disease develops. In other words, he uses stress phenomena to explain the progressive damage to the cardiovascular system which later may result in a heart attack or progressive damage to the supporting tissue that may later develop into rheumatoid arthritis.

I think one of the difficulties with Selye's work is that his experiments involve so many variables that it is very difficult to put them to very specific tests. There is no doubt he has had a profound influence on the thinking of many investigators about the emergence of chronic illness. I think it is going to be a decade or more before one can assess how right or wrong he is.

FOREIGN SCIENTISTS' CONTRIBUTION TO MEDICINE

Dr. Cummings. I would like to develop the question of foreign scientists' contribution a little further, with your permission. It is an important one. Almost a hundred years ago Louis Pasteur in France showed that if you took a chicken and tried to infect the chicken with anthrax, which is the cause of a serious animal disease, the chicken is very resistant to infection. Normally it would not come down with the disease but when he stressed the chicken by placing it in a bucket of cold water, or in a cold room, and then infected the chicken with these bacteria, the chicken came down with the disease and died. I think in view of our modern knowledge, Pasteur showed a physical stress effect. It is now known that if you put a chicken in cold water you stimulate its adrenal. It secretes the hormones that reduce resistance, and thus the chicken comes down with disease.

RECIPROCAL BENEFITS FROM FOREIGN RESEARCH

I use this as another example of why I feel we have some obligation to share, at least, in the support of good ideas and good men everywhere, using unique resources which are not available to us in this country.

Mr. Fogarty. It is a two-way street, is it not?

Dr. Cummings. Yes, sir.

Mr. Fogarty. When we share some of these resources the benefits derived will help us. Is that not so?

Dr. Cummings. Yes.

Mr. Fogarty. I have been told that, anyway.

Dr. Cummings. I feel this is a two-way street. I am reminded of a report Dr. Shannon gave recently of a trip he made to the Far East, when he described our cooperative endeavors to study cholera in Pakistan. One might say that this has no potential benefit to the health of the American people. But on the contrary, Americans are peripatetic: we move in and out of Pakistan. We have learned from past experiences, such as the Crimean War and others that cholera had a higher mortality for soldiers, at least it did in those days, than did the traumatic injuries. Thus I think we should be working with Pakistanis and other scientists to solve the health problem which no longer exists within our shores but which may conceivably affect our population groups in that part of the world.

Mr. Fogarty. You may expand the record and give us some other examples of how this international work has not only helped to repay some of the things that these other scientists have done for American medicine, but how it will help us now and in the future.

Dr. Cummings. Yes, sir.

(The information requested follows:)

Benefits Accruing to Medical Research From Support to Other Countries

CONTRIBUTIONS OF FOREIGN SCIENTISTS TO THE HEALTH OF THE AMERICAN PEOPLE

Advancements in medicine have resulted, perhaps more than in any other profession, from the accomplishments of our predecessors in older cultures. We have borrowed their experience and wisdom upon which to build a modern science in the field of health. There is no special "climate" or "ecology" for medical discovery. Significant discoveries have been and will continue to be made in all geographic areas. Wherever there exists a single scientist or a physician, there resides the potential for new biomedical accomplishments.

The founders of modern medicine, Pasteur in France, Koch in Germany, and Lister in England, transformed the theoretical and clinical basis of medicine. We not only remain indebted to these foreign scientists but also share a responsibility for providing support for the training and research of our generation of scientists, because their discoveries will profoundly affect the health of the American people as well as people everywhere.

It should also be said that the philosophy and knowledge of Hippocrates, Pare, Osler, and Sydenham are available at no cost to the profession or to the taxpayer. In recent years we have begun to reciprocate by making freely available the new knowledge provided by the skills, talents, and energies of American scientists.

The National Institutes of Health foreign grants program is still too young to assess the significant advances which have resulted from our support of scientists abroad. However, it is quite clear that since we do not have a monopoly on the resources needed for research, such as differing environments and population groups, we are compelled to support scientific efforts abroad in our own national interests. Despite almost heroic and costly efforts, the causes and treatment of cancer, heart disease, and mental disorders have still escaped us. Whereas we have learned to control communicable diseases and to treat many infectious diseases, we must still pursue the search for answers to other medical problems without foreign scientific colleagues.

Cholera, for example remains a serious threat to population groups who live in or pass through endemic areas. In the past, more soldiers have died from this disease than from the direct effects of warfare. Thus, we are working in Pakistan with foreign scientists in an effort to control and treat a disease which no longer exists in the United States. However, the need for effective immunization against cholera is no less important to our military services or our peripatetic population that it may be for Pakistanis, Indians, or other population groups in Asia and the Far East.

The significance of foreign contributions to present knowledge in major areas of medical research is well summarized in a report, "International Medical Research," prepared for the Committee on Government Operations, U.S. Senate, 85th Congress, 2d session (November 10, 1958). The role which our Government plays in this field is also dealt with. NIH is part of this community of international science and thus will continue to benefit from, and at the same time, contribute to the body of knowledge available to scientists everywhere.

Thirty Nobel prize winners in medicine have received support from NIH. Five of these distinguished laureates are foreigners and several others are of foreign birth who came to America to continue the pursuit of the scientific work. Thus, we maintain an active position of leadership in our support of outstanding research unrelated to geographic boundaries. This alliance for better health takes place without a formal framework of treaty or contract. It is a natural extension of the tradition of science where new knowledge is gained and shared freely with all who need or desire it.

Although it is exceedingly difficult to compare the relative accomplishments of different countries in medical research, there are certain ways of estimating the importance of the contributions made by our scientists. Since 1901, the Nobel Committee has had the very difficult assignment of determining each year what scientific accomplishments in the field of medicine and physiology have been of greatest importance in our efforts to control, cure, and prevent disease. The number of Nobel Prizes then is an approximate index of the number of highly useful contributions made by a country. A review of the history of these awards is very revealing for several reasons. First of all it shows that these brilliant discoveries were achieved by the citizens of 19 different countries. Among the first 13 Nobel Prize winners in medicine and physiology there were no Americans. Alexis Carrel (1911) and Karl Landsteiner (1930) were the first Americans to receive this Nobel Prize. It is of interest that Carrel was born in France and Landsteiner in Austria.

Since World War II more than half of the prizes have been awarded to Americans. Seventeen of the twenty-nine prize winners between 1946 and 1960 were Americans. However, it is also of interest that six of these Americans were born in foreign countries and nine had studied or worked abroad prior to their major work in the United States. Of the 12 foreign scientists who received this great honor during the same period, 6 had studied previously in another country. Two of these men had worked in the United States. These facts bring out very vividly the crucial importance of international cooperation in medical science.

The significance of the fact that in recent years our people have won more Nobel Prizes in medicine than the rest of the world combined, probably has not been adequately appreciated. Those who sit up nights worrying about U.S. prestige cannot possibly be aware of this. Americans, such as Enders (poliomyelitis), Waksman (streptomycin), Kendall (cortisone), Doisy (vitamins), Beadle (heredity), have done work that will affect profoundly the health of people of all nations. To give one example, to millions of human beings throughout the world, the availability of streptomycin has meant the difference between life and death. The people of all nations protected from poliomyelitis by the work of Americans such as Enders, Weller, Robbins, Salk, Koprowski, and Sabin will respect these amazing biologic exploits. American medical research in the last 20 years will eventually save more lives than were lost in World War II. It is possible that our leadership in successful efforts of medical research to learn the secrets of the human body and to protect the health of all people will be one of our greatest achievements as a nation.

COUNTRIES IN WHICH PUBLIC LAW 480 FUNDS ARE USED

Mr. Fogarty. Regarding Public Law 480 funds, what countries are we doing work in?

Dr. Cummings. We are working or negotiating with Brazil, Burma, Egypt, India, Pakistan, Israel, Yugoslavia, Indonesia, and Poland.

Mr. Fogarty. What are you doing in Poland?

Dr. Cummings. Well, sir, we have several programs which are about to be mounted in Poland. By and large the emphasis there will be on studies of neurological diseases. Dr. Masland and his Institute group have been quite impressed with the possibilities of studying encephalitis in Poland, as well as certain neuromuscular disorders.

The National Library of Medicine is engaged in having translations made from the Polish literature into English so that they will be available to English-reading scientists.

We are hoping to mount several programs in the area of infectious diseases in Poland as well. There will be a study of cerebral-vascular diseases.

I wish that our program were a little more mature so that we could talk about some of the accomplishments but I think it is just too early, sir, to mention those.

LATIN AMERICA

Mr. FOGARTY. I am surprised you are only working with one country in South America, with all this talk about the alliance for progress with South America. You only have one project going, in Brazil.

Dr. CUMMINGS. That is right, sir. This is a disappointment to us because quite frankly, we believe that the research opportunities in Latin America are great. The paradox exists that available U.S. excess foreign currencies are in countries where the scientific potential is not as great as in Latin America. Therefore, we would be very pleased if we could mount programs in countries such as Brazil, Chile, Peru, Colombia, where we know there are centers of excellence to build upon and scientists prepared to work. We have in fact requested Public Law 480 funds for Latin America, but they were not available during the current fiscal year.

Mr. FOGARTY. Do you think you could mount a real strong Latin American program if you were given the funds?

Dr. CUMMINGS. Sir, I believe that over a 3- or 4-year period we could mount a program of biomedical research in Latin America that would be significant in the sense of its research productivity and the contributions that might derive from such work.

Mr. FOGARTY. You may need a litle time to think that over. Supply for the record what countries you think these research programs could be mounted in in South America and how much they would cost and over how long a period of time.

(The information requested follows:)

OUTLINE OF A PROGRAM FOR MEDICAL AND HEALTH RESEARCH AND TRAINING IN LATIN AMERICA

GENERAL

This statement outlines research and training plans of the National Institutes of Health for programs in the field of health for possible development in Latin America in 1963. Their broad nature has been conditioned by the character of the general objectives of a United States-Latin American program which are understood to be:

1. Long-term economic, social, and cultural development.
2. Utilization of collaborative and cooperative mechanisms.
3. Full acceptance by and eventual full support by the people, institutions, and countries concerned.

Prior to considering specific proposals, some general considerations are important. Many Latin American countries have characteristics which permit them to be grouped with the underdeveloped countries. Consequently, the most urgent utilization of science in fostering economic, social, and cultural development will be in the direction of applying knowledge already in existence and in providing a broad basis of understanding and capability so that population groups will select desirable objectives as being urgently their own.

Among the more pressing needs is the application of existing technical knowledge where the consequences of such activity can be of tremendous economic and social benefit, as well as the search for new knowledge in the following areas:

1. Studies of infectious diseases and curtailment of transmissible disease.
2. Research leading to development of an adequately nutritious food supply with initial emphasis on protein availability and essential accessory food factors.
3. Epidemiologic studies of diseases with unusual geographic distribution or high prevalence.
4. Adequate environmental sanitation; the first step in which is adequate potable water supply and sanitary waste disposal.

NIH would be primarily concerned with the first three items which are related to its objectives. It is to be emphaized that the eventual acceptance of these objectives as essential to a normal individual and community life requires sophistication beyond that which characterizes most rural populations or the great masses of underprivileged in large urban areas. Over the long haul, progress in these areas depends on some fundamentals:

1. Adequate primary and secondary education.
2. Agricultural reforms.
3. Systematic and sustained application of basic health measures.

It seems unlikely that the normal evolution of capability and direction of effort within these population groups will be sufficient to cope with these problems. Direct intervention through some form of collaborative assistance mechanisms will be essential to bring to bear the necessary capability and capacity to make speedy and substantial progress in their solution. This kind and direction of approach forms, therefore, the first priority in assistance efforts in the field of health and medicine.

These general thoughts are cited as a preamble to program proposals in the field of health and medical research because of the conviction that, short of providing direct services to the large needful population groups of Latin America at an early date, the longer range programs will not prosper.

NATURE OF NIH PROPOSALS

The NIH proposals presented below do not deal with direct disease control, public health assistance, and demonstration programs which form the basis of the kind of effort urged above. These activities are viewed as appropriately the substance of the kind of health programs traditionally carried out by the health portion of the AID operational missions. Undoubtedly, a reoriented and reinvigorated effort is needed here in which other parts of the Public Health Service can make a substantial contribution.

It is the area of health and medical research, the underlying training and educational processes, the development of the related scientific fields, and strengthening the framework of institutions and organizations to which the proposals of the NIH are directed.

THE SPECIFIC PROPOSALS

In summary outline form, the development of a broad, long-range effort in the area of health and medical sciences and their related resources in Latin America would encompass the following actions:

1. Planning

The complexities of both the political, scientific, and educations scene in Latin America emphasize the need to proceed carefully in the planning stage. Two actions are proposed:

(*a*) The general character of a program for development of the sciences in terms of content, priorities, and policies should be developed in conference with Latin American scientific leaders. Specific plans for the fields of health and medical research could evolve in consonance with the general conclusions of such discussions.

(*b*) The financing would utilize several sources of funds. The support of the research and training activities could be derived from U.S.-owned local currencies in large measure. Dollar investments would not exceed 10 percent of the overall costs. Wherever possible, indirect costs should be borne by the host countries, thus assuring a mutuality of interests.

2. The strengthening of teaching and research institutions

The keystone of a program in the health and medical sciences in Latin America would be the selection of from four to six institutions of higher learning for intensive development as centers of excellence for research and training activities. This action would be a part of the broader concept of strengthening not only individual areas of science, but also the institutions most significant to the development of science generally in Latin America. There are several places where there is a "critical mass" of competence, facilities, and money which is prerequisite to a self-sustaining reaction. In the field of health, medical, and related basic sciences, the University of Mendoza in Argentina; the National University of Chile; Ribeirao Preto, São Paulo; selected parts of the University of Brazil in Rio de Janeiro; and the Universidad del Valle in

Cali, Colombia, constitute promising locations for such an effort. Action to strengthen these institutions as well as others would include:

(*a*) Strengthening of departments through collaborative or "sister university" relationships with U.S. universities to provide for exchange of faculties in fields needing development. A similar relationship on a department-to-department basis would be useful in specialized areas of interest.

(*b*) Support of faculty through fellowships or training grants to encourage full-time teaching and research. The use of visiting and exchange professors would fill the gap until the universities in Latin America were able to provide financing for their own faculties. Commitments should not exceed 5 years and a matching plan formula for gradual takeover by the Latin American schools could be evolved.

Estimated initial annual cost: Institutional support, $1 million ($900,000 from Public Law 480 funds, $100,000 in U.S. dollars). The U.S.-owned foreign currencies would be used in the host countries; whereas, the dollars would be used in American institutions.

3. Extension of training opportunities

A series of actions which would be related to the institutional development proposed, but which would emphasize specifically the training of individuals in the health and medial sciences is proposed:

(*a*) The number of fellowships available to Latin American scholars and investigators in health and medical science fields for training, study, and research in the United States should be enlarged. Presently, 18 individuals are participating in the NIH international fellowships program in Latin America. This number would be increased to 50 and the program broadened to cover all disciplines relating to the health and medical and related basic sciences. Estimated annual cost, $500,000.

(*b*) In like manner, comparable fellowships available for U.S. nationals to study, do research, or teach in Latin America would be increased. A total of 30 such fellowships would be offered at an estimated annual cost of $180,000. Such a fellowship program could be extended with profit by a visiting professorship program, the initial cost of which would be in the order of $200,000.

(*c*) A new program to provide fellowship or other training support at both the pre- and postdoctoral level for promising young Latin Americans to study, do research or teach in Latin American universities and research institutions would be inaugurated. Selection would be through national organizations and provide support up to 3 years. Proposed number, 100; estimated annual cost, $300,000.

4. Support of research

Based on ideas, opportunities, and needs arising from the present inerests of United States and Latin American scientists and as developed under the comprehensive research plan derived from the NIH research planning grant to the Pan American Health Organization, appropriate enlargement of grants for the support of research projects and programs in Latin America would be provided for. Present NIH research grant support in Latin America totals approximately $900,000 per year. A fourfold increase to $3,500,000 in this support over the next 3 years is proposed. Particular effort would be made to utilize collaborative arrangements in the development of research programs especially providing a significant role for national scientific organizations both for guidance and as a mechanism for selection of projects and distribtuion of support.

In total, the estimated annual cost of these proposals would amount to $2,180,000 of which $1 million would be for research and $1,800,000 for research training ($900,000 of the total could be in local currencies in such countries as Brazil, Chile, Colombia, and Peru).

THE GENERAL CONSIDERATIONS

In the development of these proposals, attention has been given to some fundamental points which it may be important to stress again:

1. Overall plans should be developed in consultation with Latin American scientific organizations and representatives.
2. Major emphasis in program proposed should be directed toward the support of existing intellectual centers for research and training.
3. Overcoming the professional and technical manpower deficit is a high priority need.

4. In the encouragement of the two-way exchange of scientists, a pointed and substantial effort should be made to insure repatriation and to permit the return of scientists long expatriated.

EFFECT OF RESERVES ON WORK IN LATIN AMERICA

Mr. FOGARTY. You are doing a little with hard dollars.

Dr. CUMMINGS. In Latin America?

Mr. FOGARTY. Yes.

Dr. CUMMINGS. Yes, sir, we are supporting research in Latin America through our regular dollar grants program. We have a small international postdoctoral research fellowship program which bring to the United States young scientists to work with our scientists while they receive training. These men will be returning in small numbers and I think will be excellent young men to build upon for collaborative efforts in the future.

In addition, I think that the training of Americans in South America could go forward in a few centers, such as the Universidad del Valle in Cali, Colombia, where, as you heard this morning, we have an International Center for Medical Research and Training affiliated with Tulane.

INTERNATIONAL CONFERENCE CENTER

Mr. FOGARTY. For 2 or 3 years we have been hearing about an international conference building. Has anything ever been done other than to talk?

Dr. CUMMINGS. Well, sir, we have plans.

Mr. FOGARTY. Dr. Shannon referred to it earlier in this hearing.

Dr. CUMMINGS. In my judgment there is a need for such an international conference center and we have developed plans and a program to develop such a center, but there has been no financing for this activity to my knowledge.

Mr. FOGARTY. Have you made any requests for financing?

Dr. CUMMINGS. No formal request has gone forward.

Dr. SHANNON. Mr. Fogarty, I would like to clarify that a little.

We have made an informal proposal to Dr. Terry for purposes of discussion within the Service that outlines in general terms the type of program that we would propose to mount and the type of facilities that would be required, but this has not got beyond the stage of discussion between ourselves and the Office of the Surgeon General.

Mr. KELLY. You made a formal request for planning funds for your 1963 budget, but it was not included in the Department's submission to the Bureau of the Budget. There was a request for $400,000.

Dr. SHANNON. I am not talking about dollars now, but the internal planning, as such, Mr. Kelly.

Mr. FOGARTY. I was talking about the building, itself. That is what I thought we were talking about.

Dr. SHANNON. This is included in the program plans we submitted.

Mr. FOGARTY. Will you submit for the record, then, what you submitted to the Surgeon General or to the Department, covering the entire program?

Dr. SHANNON. Yes, sir.

(The information requested follows:)

PROPOSAL FOR AN INTERNATIONAL CONFERENCE CENTER AT THE NATIONAL INSTITUTES OF HEALTH

A. SUMMARY

In order for the National Institutes of Health to effectively carry out its responsibilities in the area of international medical research, it should have on the grounds a facility in which to house suitably the activities associated with its total international program, with space for working groups and conference rooms of various sizes.

The exchange of information and opinions on medical research between scientists of different countries is one of the firmest bases on which to build bridges of international cooperation and understanding. The National Institutes of Health has a responsibility in promoting the exchange of medical research information and in affording opportunities for medical scientists of different countries to meet together under suitable circumstances on subjects of international interest and concern.

In spite of our extensive participation (approximately $19 million in fiscal year 1962) in international medical affairs and the desirability and probability that these programs will increase, there is no place in the United States available for the efficient conduct of medical meetings, symposia, and working seminars attended by nationals of different countries. While the National Institutes of Health is a medical research center which attracts many hundreds of people from foreign countries every year, it has no facilities equipped for simultaneous translation or for meetings involving visitors from numerous foreign countries. Full advantage cannot be taken of the knowledge of many experts who lack the ability to present lectures and participate in the discussions in the English language. An international conference building equipped for simultaneous translation of conferences, with rooms in varying sizes for working groups, lounges for informal discussion, a cafeteria for visiting scientists would serve an urgent need not only for the National Institutes of Health, but for the Department, the Public Health Service, and for the conduct of numerous international meetings involving the National Institutes of Health and other Federal agencies with similar interests.

Assumption of this leading role through the provision of large and increasing financial support carries with it an obligation to follow through with dissemination of information on research accomplishments and needs and with effective guidance in development of appropriate coordinated research programs. Implementation of this responsibility requires the means to bring together scientists from various countries in an environment conducive to their communication with each other. The facilities required are not now available at Bethesda or at any other single suitable location in the United States.

The logical focal point for the international program is the Bethesda site which is the headquarters for both the intramural and the research grants program and which has a large staff of prominent investigators, excellent medical research facilities, and conveniently nearby, the National Library of Medicine.

An International Center is therefore proposed for immediate planning and early construction on the NIH reservation. The primary feature of the International Center will be conference rooms to provide for various sized groups and an auditorium, with simultaneous translation facilities. By inclusion of lounge areas, exhibit space, a library and reading room, eating facilities, and overnight accommodations, the design will stimulate communication by encouraging intermingling of conference delegates in an informal, relaxed atmosphere. Closed circuit TV, connected to the existing Clinical Center system, is proposed. Supporting office facilities will provide space for the required administrative staff. The proposed site, which is available on the Bethesda reservaton, will contribute a certain amount of desired prestige to this facility.

B. NEEDS

1. Conference space

Examination of present programs and the availability of existing conference facilities shows clearly the justification for additional and more suitable conference rooms even without consideration of future growth.

Forty-five study sections, under the Division of Research Grants, now meet formally in 3-day sessions three times per year, or a total of 405 meeting days. There are additional ad hoc meetings, not formally scheduled. The great majority of these meetings must be held in expensive rented space in hotels either locally or outside of the Washington area. When not held locally, considerable travel costs are incurred. Study sections require conference rooms with an approximate capacity of 50, including participants, secretarial help, visitors, and observers.

Also, under the auspices of the Division of Research Grants, there are meetings of the national advisory councils and their planning committees, other Institute committees, program project committees, and review panels. The foreign and domestic aspects of these conference programs are intermingled. These groups meet for a total of approximately 512 meeting days per year. Many of these meetings must also be held in costly hotel space at the present time. Those that are able to meet on the NIH reservation are forced to use facilities which are substandard and are wholly inadequate in size.

In addition to the above, the Office of International Research Advisory Committee meets three times a year for 3 days each. The U.S.A.–U.S.S.R. exchange meetings are held three times per year for 2 days each. There are numerous other small international conferences in the biomedical field each year.

Through the Division of International Health, U.S. PHS, it is anticipated that the Office of the Surgeon General, the Division of International Health, and the Bureau of State Services will have use for the proposed conference facilities on the basis of 1 week per month over a 6-month period per year.

While a survey has not been conducted within the Department of Health, Education, and Welfare, it is expected that the activities of the newly established Office of International Affairs of the Secretary, DHEW, will generate considerable need for conference spaces for meetings of an international nature, which might be accommodated, at least in part, by the NIH International Center. The International Center will also be available to the National Library of Medicine.

There are a large number of other organizations in the field of international biomedical research or related sciences. In the 3-year period beginning January 1962, there are 109 meetings of these groups presently scheduled to be held in foreign countries, and 47 in the United States, 6 in the Washington area. Such organizations include WHO, Pan American Health Organization, the International Conference on Nutrition, and the International Union Against Cancer. With proper facilities available, it is likely that a number of these meetings could be held at NIH.

Neither existing conference rooms nor auditoriums at NIH are available or suitable to meet the needs here discussed. Existing conference rooms are required for nearly full-time use of the intramural program. The Clinical Center auditorium (capacity 500) and Wilson Hall (capacity 200) are presently booked almost solidly so that the new program could expect very little availability of these facilities. The Clinical Center needs justifiably preempt the existing auditorium space in that building. Translation facilities, needed by the international program, are not available in the present conference rooms and auditoriums.

2. *Conference supporting facilities*

Perhaps equally as important as the value to be derived from international conference space are the benefits which will accrue from bringing together many research scientists, who might not otherwise be brought into contact with one another, under conditions and circumstances conducive to free association and exchange of ideas. Full realization of these benefits requires a facility which provides opportunity and space for a comfortable, quiet environment conducive to thoughtful conversation and to learning. The educational value results partly, as in an academic institution, from the close association, outside of the formal meeting time, of those who come together to learn. The opportunity to learn from each other in relaxed informal sessions is lost under the existing conditions of meetings in the hotel convention-type conference environment.

In order to satisfy these needs, space is required for informal gatherings, for library and reading room, for eating facilities, and for sleeping accommodations to house visiting scientists primarily from foreign countries. It is important to have all of these facilities contiguous if the benefits of close association are to be realized to the fullest. Other considerations particularly relevant to the need for eating facilities are that overnight guests will require morning and possibly evening food service and a very large number of the conferences will be held over weekends when other NIH cafeterias do not operate.

Additional needs in support of the international program are for office spaces to house a small staff of approximately 10 people responsible for the building and conference arrangements and to house approximately 100 people who constitute the operating elements of the Office of International Research. Provision of space for this latter group will bring it appropriately to the operating center of the international program while at the same time releasing other office space at NIH for activities now in rented quarters.

C. PROPOSAL

A study of the programs and requirements outlined above and the evaluation of existing facilities leads to the following proposal for specific elements of the International Center:

1. Five conference rooms accommodating not less than 50 people.
2. One large conference room accommodating approximately 100 people.
3. One auditorium accommodating approximately 250 people.
4. Translating facilities on a multilingual basis (at least 5 languages).
5. A modest size room for library facilities and reading accommodations.
6. Adequate space to accommodate various types of exhibits (this space for the construction of exhibits connected with specific meetings).
7. Reception lounge for informal gatherings sufficiently spacious to accommodate a reasonable percentage of individuals attending conferences.
8. Lobby and registration facilities of the hotel type.
9. Cafeteria facilities for approximately 300, private dining room for approximately 50, and an executive dining room for approximately 25 people.
10. Snack bar to accommodate approximately 50 people.
11. Sleeping accommodations for approximately 50 visiting scientists and conference participants, the room being planned largely for double occupancy. They should be studio-type bedrooms suitable for small informal meetings.
12. Office space for approximately 100 people to be used by operating elements of the Office of International Research.
13. Office space for a staff of 10 people responsible for the building and conference arrangements.
14. Adequate parking facilities.

D. ESTIMATED COST

The current estimated costs for planning and constructing are as follows:

	Construction	Planning	Total
Conference building	$3,940,000	$310,000	$4,250,000
Quarters for visiting scientists	280,000	20,000	300,000
Multilevel parking	900,000	50,000	950,000
Total project	5,120,000	380,000	5,500,000

Mr. FOGARTY. Mr. Marshall.

ECONOMIC EFFECT OF PUBLIC LAW 480 FUNDS

Mr. MARSHALL. These programs were made possible because there has been an accumulation of funds that were generated by the sales of agricultural commodities under Public Law 480, is that correct?

Dr. CUMMINGS. That is my understanding, sir.

Mr. MARSHALL. In all likelihood, you would not have been able to carry on any of these programs unless there had been that accumulation of funds?

Dr. CUMMINGS. That is true.

Mr. MARSHALL. I had the notion at one time that the fact that these funds had been accumulated and used for the purposes that you are using them would be a saving to the taxpayer of the country. I guess probably I was disillusioned in that notion. Do you feel that there has been any saving to the taxpayer in this country because of the use you have been able to put these funds to?

Dr. Cummings. I am not sure that we could say there has been a saving. I think it may be true that the flow of hard dollars abroad is stopped to some degree by the utilization of Public Law 480 funds.

Philosophically, it would appear that these funds are used for additive research support, rather than for replacement of existing research programs. I do not think that I could say that this is a saving to the taxpayer, no.

Dr. Terry. Realistically, Mr. Marshall, I think we have to face the fact that these programs have not been in operation long enough to have tangible results which can have application in this country. Frankly, I expect with confidence that over a period of time we will be able to say that the results of these programs will have accrued financial savings in terms of the scientific information which they will make available and which will be useful to us in treating illness and saving lives in this country.

Dr. Shannon. Mr. Marshall, if one thinks beyond the foreign currency program itself and considers the broader foreign grant program, there have been actual hard dollar savings. At the present time, when a grant is made to an investigator in a foreign country where U.S.-owned local currencies are available, this grant is negotiated so that a portion of the grant is paid in U.S.-owned local currencies and only that part of the total grant for which hard dollars are necessary—such as the import of equipment and the like—is paid in hard dollars. There is thus a saving in hard dollars.

I do not want to exaggerate the magnitude of that saving because most of the grants that we make are in the advanced countries where U.S.-owned local currencies are not available. However, in Israel, for example, where we have both U.S.-owned currencies and a very high research potential, each grant is negotiated so that funds are made available in two parts. To that extent and to the extent possible there is saving in practice—not in the Public Law 480 program but in the general program.

Mr. Marshall. You are familiar with the term "representation allowances"?

Dr. Shannon. Yes, sir.

Mr. Marshall. None of this money is used for representation allowances?

Dr. Shannon. No, sir.

Mr. Fogarty. Mr. Michel?

FUNDING FOREIGN CURRENCY PROGRAMS

Mr. Michel. As I understand the operation of this program, these research agreements which might be entered into may run for 2 or 3 years' duration, but are fully funded at the time of signing of the agreement?

Dr. Cummings. That is correct.

Mr. Michel. In addition to that, payments are made periodically then through the life of the contract?

Dr. Cummings. That is correct, sir.

The payments are made by disbursements from the Embassy as per the agreement, which is signed between the two governments.

Mr. MICHEL. For those contracts that are in existence for Poland, did the Department of Treasury notify you folks that there would be, as of December, a change of the exchange rate of the zloty from 54 to 1 to 24 to 1?

Mr. KELLY. Yes, Mr. Michel, and we have had to—within the appropriation for foreign currencies where we have planned them for one country and planned them for the purchase of so much in the way of foreign currencies—we have had to on several occasions, now, reconsider it because of the change in the currency rate and then we advise Treasury to adjust money between countries, the moneys that we had earmarked between countries and we are taking one further safeguarding step and that is that we are not allocating the total available funds to research projects, but are maintaining a reserve for the contingency of a change in the currency rates.

EFFECT OF CURRENCY EXCHANGE RATE VARIATIONS

Mr. MICHEL. Taking Poland, what effect has that devaluation of the dollar had on our research program there? Hasn't it cut what we would have normally got in half?

Dr. CUMMINGS. Theoretically, yes, but since we have not as yet received the signed agreements from Poland, technically it has not. However, in Brazil your point would be well taken.

We have in essence had the dollar equivalent of the cruzeiros which we own there cut in half by devaluation of the Brazilian cruzeiros and this poses serious problems in forward planning.

Mr. MICHEL. This was going to be my next question. What other countries had a change of exchange rate?

Mr. KELLY. I know it was in Poland and Brazil. I think there was one other on which I have carried on correspondence with the Treasury Department.

Dr. CUMMINGS. I think there has been a small change in the value of the Israeli pound.

Mr. MICHEL. This problem has come up before in another subcommittee and I have had an inquiry in with the Treasury Department, which has not yet been satisfied. I am just exploring it here a little bit to get the record complete because so far as we knew there was no other general overall adjustment of exchange rates between the countries except in this particular area. The question arising in my mind is this: Are these countries getting wise now to the fact that we have got so much available that they can double the ante on us and get by with it. It is a distinct possibility, you know.

Mr. KELLY. I do not know enough about it, but I would think that the availability of foreign currencies would be such a small, relatively small proportion of the total problem of foreign exchange that it would not be done just for this purpose, Mr. Michel.

Mr. MICHEL. I want to make absolutely sure it is not the case.

Mr. KELLY. I would not want to state that authoritatively. I do not know.

Mr. MICHEL. That is all, Mr. Chairman.

HARD DOLLAR VS. PUBLIC LAW 480 PROGRAM

Mr. Fogarty. I have often thought as you know, Doctor, if we want to get a real program on the road we ought to bypass the State Department red tape anyway, and we ought to make the grants with hard dollars. That way we would be dealing with countries that have the know-how and good projects that would meet the same type of test for quality that those in this country do.

Dr. Cummings. Well, sir, we are doing this in essence in our hard dollar program, although I would not want to go on record as saying we bypass the State Department.

Mr. Fogarty. I will say that if they get into it very much you will never get the thing off the ground.

That is my opinion.

Dr. Cummings. We are working very closely with the State Department in our Public Law 480 program. Their foreign economic counselors and others have been helpful to us abroad. In our fellowship program and in our hard dollar foreign grants program, however, our relationships with the State Department are limited to the review of the foreign scientists from nonscientific considerations only.

Mr. Fogarty. This is not the area where you are 6 to 9 months behind, is it?

Dr. Cummings. It may take as long as 6 to 9 months to attain all of the clearances for payment of foreign grants, but I believe when we last looked into this question, Mr. Fogarty, the delay averaged 72 days.

Mr. Fogarty. The delays in the Public Law 480 program have certainly been longer than 72 days. You didn't have a single project started under the 1961 appropriation by the end of 1961. In my opinion, it never will be anywhere near as good a program as the hard dollar program.

Dr. Shannon. Some of these programs are attractive to us because they can be set up as a collaborative research activity involving our direct research activity as well as Public Law 480 funds. We feel it well worth spending the administrative time that is necessary to establish them. In point of fact, some of the programs are set up not because of availability of Public Law 480 funds, but because of the availability of an opportunity to collaborate with our scientists in Bethesda. This is not a small factor in their acceptability.

FOREIGN ASSISTANCE

Mr. Fogarty. I was reading two or three articles by Dr. Page. I thought I had put them in my pocket this morning. I cannot find them. Was it in Medico that he has written three or four articles, after his trip to Russia? He felt we could make a lot more friends through food and medicine than we could through much of the foreign aid we are giving to these various countries. Are you familiar with these articles?

Dr. Shannon. No, sir; but I am familiar with the comment. I know Dr. Page very well. I think it is not a question of one or the other, but of a balanced approach with both. That would be my opinion.

Mr. Fogarty. Food and medicine?

Dr. SHANNON. Yes, sir; and aid. I have traveled enough in these countries to know that in the long run simply satisfying medical needs is in itself not enough to do the country anything other than temporary good.

Mr. FOGARTY. Other than what?

Dr. SHANNON. Do them a temporary good. Their problems are too deep seated. I think, on the other hand, that medicine as such has not loomed as large in our approach to the developing country as perhaps it should.

Mr. FOGARTY. Is there anything else you would like to say, Dr. Cummings?

Dr. CUMMINGS. No, sir; I think not.

Mr. FOGARTY. Thank you very much. We shall convene at 10 in the morning.

(For additional information on international activities see pp. 783–790.)

NATIONAL HEALTH STATISTICS

WITNESSES

DR. FORREST E. LINDER, DIRECTOR, NATIONAL CENTER FOR HEALTH STATISTICS

DR. LUTHER L. TERRY, SURGEON GENERAL

JAMES F. KELLY, DEPARTMENT BUDGET OFFICER

Object classification

[In thousands of dollars]

	1961 actual	1962 estimate	1963 estimate
11 Personnel compensation:			
Permanent positions	1,575	1,942	2,214
Positions other than permanent	29	66	66
Other personnel compensation	50	30	30
Total personnel compensation	1,654	2,039	2,310
12 Personnel benefits	120	153	173
21 Travel and transportation of persons	155	241	250
22 Transportation of things	16	28	26
23 Rent, communications, and utilities	151	158	270
24 Printing and reproduction	64	67	79
25 Other services	272	364	452
Services of other agencies	1,337	1,337	1,595
26 Supplies and materials	49	32	32
31 Equipment	213	78	64
Subtotal	4,030	4,496	5,251
Deduct quarters and subsistence charges	1	1	1
Total obligations	4,028	4,495	5,250

Personnel summary

	1961 actual	1962 estimate	1963 estimate
Total number of permanent positions	292	336	381
Full-time equivalent of other positions	5	10	11
Average number of all employees	250	312	357
Number of employees at end of year	287	336	381
Average GS grade	6.7	6.9	6.9
Average GS salary	$6,212	$6,285	$6,250

Program and financing

[In thousands of dollars]

	1961 actual	1962 estimate	1963 estimate
Program by activities:			
National vital and health statistics (total program costs) [1]	3,921	4,590	5,250
Change in selected resources [2]	107	−95	
Total obligations	4,028	4,495	5,250
Financing:			
Comparative transfers from other accounts	−4,028		
Unobligated balance lapsing		147	
New obligational authority (appropriation)		4,642	5,250

[1] Includes capital outlay as follows: 1961, $170,000; 1962, $125,000; 1963, $60,000.

[2] Selected resources as of June 30 are as follows: Unpaid undelivered orders, 1960, $115,000; (1961 adjustments −$12,000); 1961, $210,000; 1962, $115,000; 1963, $115,000.

GENERAL STATEMENT

Mr. FOGARTY. Next we have Dr. Linder, Director, National Center for Health Statistics.

Doctor, do you have a prepared statement?

Dr. LINDER. Yes, Mr. Chairman.

Mr. FOGARTY. Proceed.

Dr. LINDER. I have a prepared statement which I would like to file for the record and then read from a summary statement.

Mr. FOGARTY. Very well.

(The statement follows:)

STATEMENT BY DIRECTOR, NATIONAL CENTER FOR HEALTH STATISTICS, ON NATIONAL HEALTH STATISTICS

Mr. Chairman and members of the committee, when I appeared before you a year ago, I outlined at some length the reasoning leading to the decision to establish the National Center for Health Statistics and I described the continuing responsibilities of the center. An undertaking of the scope reflected in that outline cannot be accomplished in a short period or without encountering major problems.

I am pleased, however, to report that we have moved much nearer our goals during the past year. Substantial progress has been made in reorganizing, reinvigorating, and to some extent in redirecting the programs of the center. Progress has been made too in dealing with numerous problems, including space, personnel, and other administrative matters though more remain to be dealt with. It is fair to say, however, that the outlines of the new organization are now drawn, its targets are fixed, and a clear path to its future is visible.

One of the problems with which we have contended during the year centers on the budget itself and traces to the timing of the organization's creation. You will recall that the National Center for Health Statistics was established by the Surgeon General in August of 1960. At that time, planning for the 1962 budget was well underway and it was impossible in the time then available to give full consideration to the budgetary structure of the new organization in any overall sense. Such consideration would probably have been impossible in any case in the early months of our existence because our organizational structure and related financial needs did not emerge immediately but required long and careful planning.

The 1963 budget for the National Center for Health Statistics reflects such planning. It represents the first real effort to evaluate the total needs of the center as a coordinated organizational unit. These estimates reflect certain program deficiencies under which the center will operate in 1962 as well as full staffing of the center's offices. More important they include the minimum resources to equip the center to undertake the responsibilities now assigned to it. In total, the 1963 estimates indicate an increase of $755,000 over funds available for the current year. While the detail justification of this amount is already before you in printed form I should like to devote a few moments to discussion of its major components.

OFFICE OF HEALTH STATISTICS ANALYSIS

The concept of the "Office of Health Statistics Analysis" is, I believe, an important advance in health statistics research and deserves some attention. The two major operating divisions of the center produce a wide range of significant health data and these are published with detailed technical or expository analyses. However, there have been numerous suggestions that the Public Health Service has a responsibility to give its data a more profound and a more general type of analysis—revealing its significance in relation to major public health problems. This will be the function of the Office of Health Statistics Analysis. The Office will consist of a small group of analytical specialists—isolated from the day-to-day problems of data collection and processing—who will develop a more long-range interpretation of health trends and relations. This extension of the analysis will greatly increase the value of the existing data to the research scientist, the public health administrator, and the legislator.

Naturally, results cannot be expected from this research-type activity overnight, but in the short time in which this Office has existed several very significant studies have been started. One of these is a comparative analysis of recent trends in the death rate. This study is being carried on as a cooperative project between our Office and medical statisticians in three or four other countries. This study should result in a much clearer idea of current mortality problems in the United States as compared to those in other countries.

In view of the great importance of the mission of this Office, it is essential that recruitment proceed with extreme care to insure that the best qualified professional staff is obtained. For this reason, it was decided to extend the staffing of this Office over a 2-year period, thus limiting its growth in the current fiscal year. Recruiting has now progressed satisfactorily enough to warrant confidence that we can complete staffing in 1963 to the level now foreseen for this Office.

OFFICE OF ELECTRONIC SYSTEMS

With regard to the Office of Electronic Systems, I am glad to report a most satisfactory and concrete item of progress. When I spoke to this committee last year, our intention to acquire a modern electronic computer for the center was a plan only. Now it is a reality. Since last year we have developed a detailed schedule for the conversion of all center procedures to electronic processing; we have constructed an efficient computer site; the computer has now been installed and is in productive use.

The acquisition of this electronic computer facility has given strong impetus to the modernization effort of the whole center. The first stage of the computer acquisition was completed in December of 1961 with installation of an IBM model 1401 computer. This system has been productive almost from the date of delivery and the advantages of electronic processing are already established. This relatively small configuration, however, is intended only for short-range needs and is not adequate to the ultimate needs of the center. We plan in July of 1962 to expand the system to include a more sophisticated 1410 system.

A careful plan for conversion from current data processing techniques to the computer has been prepared. The plan calls for the processing of all statistical data of the center on its computer facility by 1964. This schedule will require a real effort in training, programing, and coordination of the various phases of data procurement and processing, but on the basis of performance to date we regard it as realistic. The plan involves the use of both 1401 and 1410 installations with increasing emphasis on the latter because of its greater speed and higher storage capacity. The 1401 will remain an essential part of the final configuration because it is the most efficient and economical medium for such purposes as card-to-tape conversion, and print-out of results.

Once facilities have been acquired and the problems of conversion to the electronic system have been overcome we will devote increasing attention to our responsibility for serving as a focus for data processing expertise and for encouraging the use of technological advances throughout the Public Health Service. Indeed, some such activity is already underway and computer time has already been made available to some other elements of the Public Health Service. We will continue a policy of making our equipment available to others to the fullest extent possible, consistent with the principle that the primary purpose of our computer facility is to expedite the processing and analysis of statistical data relating to public health.

NATIONAL HEALTH SURVEY DIVISION

The series of health surveys which were established by the National Health Survey Act of 1956 have now achieved a recognized and authoritative status as a major supplier of up-to-date information on many aspects of the health of the American people.

The health interview survey, which was the first survey to be started, has now published more than 42 major reports on a wide range of topics including health insurance coverage, proportion of hospital bill covered by insurance, rate and duration of hospitalization, days lost from work or school because of illness, and many other topics. The facts are not given just as totals, but are presented in relation to important demographic, social and economic factors such as degrees of urbanization, income, education, age, and unusual economic activity. In fiscal 1963, this survey will continue its basic program. Its budgetary requirements are predictable within relatively narrow limits and the 1963 budget shows only a small increase required for certain quality control measures and for certain supplemental studies which are necessary for the basic rotation system of items covered in the interview questionnaire.

The Health Examination Survey, which is the first effort anywhere in the world to apply the technique of physical and clinical examination to a national sample of the population, is perhaps one of the most difficult and complex statistical studies of health ever undertaken. There have been numerous problems of survey design, logistics, response rate, and analysis to solve.

However, by the end of January of this year we had completed more than 4,200 examinations throughout 19 States and the whole series of 6,000 examinations in the first survey cycle will be completed in the fall of 1962. We will then be in a position to start publishing a type of basic clinical and physical data descriptive of the American population which has never been available before.

The budget request for 1963 provides for the completion of this first cycle of examinations and analytical work involved with the compilation and publication of the collected data. In addition it will be necessary in 1963 to undertake developmental studies in preparation for the second cycle of the health examination Survey which will focus on the examination of children and will require a different approach from that used in the first cycle.

The newest of the three major activities of the Health Survey Division is the Health Records Survey, designed to utilize existing medical records in the files of hospitals and other institutions. The first major study undertaken by this survey will be a detailed factfinding survey of resident places providing nursing and personal care. This will give for the first time a more complete understanding of the characteristics of the population of older people served by these institutions.

The program for 1963 includes reporting on the above survey, which was initiated in 1962, as well as sample selection and pretesting for a general institutional survey and for a continuing collection of a sample of general hospital discharge records.

NATIONAL VITAL STATISTICS DIVISION

One of the major initial objectives of the National Center for Health Statistics was a review and a redirection of its program in the field of vital statistics. Federal responsibilities in this field go back as far as 1904 when the Federal Government first began cooperation with the States for the improvement of civil registration and for national tabulations of recorded vital events. Although of long standing, the program requires constant revision and improvement to keep apace with changing public health needs.

Several areas require major attention. Our problem is to bring the tabulation work of the Division up to date and to convert its processing to electronic computer methods. A detailed computer plan has been developed and is now being put into effect. The first stages of this plan have been so successful that for the first time in many years it has been possible to announce final data for the births of 1 year before the end of the following year (1960 birth figures were announced in December 1961). This is only a first result, and the planned full modernization program will extend into calendar year 1964.

Another major problem relates to the original source of our records. These come from State health departments, but the work of improving the quality and the nationwide uniformity of the records of 50 States requires a strong coordinating effort and detailed research into alternative registration methods suitable for current problems. Also, State vital records are in ever increasing demand for research and legal purposes by Federal and other agencies, and an equitable method of compensating the States for the work they do for the Federal agencies has not yet been devised. The estimates include some increase for additional backup work for the States in the area of registration methods.

From a substantive standpoint there are two major needs to be met in 1963. One of these relates to marriage and divorce statistics. The present program in this area is based on a sample of less than 60,000 and is entirely inadequate to reveal the detail of important national trends. This will be particularly true when greatly increased interest begins to focus on the marriage rate which should increase very rapidly since the "baby-boom" children of the early 1940's are now reaching the marriage ages. The 1963 estimates provides for a doubling of the sample size so as to permit more detailed tabulation and analysis.

The other major substantive item covered in the 1963 estimates relates to the increasing use of vital records as the sampling frame for followback studies. By these new methods it is possible to use routine vital records for research-type studies on many factors relating to disease and medical care which are not covered by the information given on the legal registration document. A number of studies of this type are being developed and this technique represents, perhaps, the most dynamic technical advance in vital statistics analysis in many years.

During the past year, there has also been underway a comprehensive management study of this Division's organization and administrative procedures. This study has resulted in several changes which we believe will lead to more efficient and effective operations. Other management improvements will be made in the future.

TOTAL ESTIMATE FOR NATIONAL CENTER FOR HEALTH STATISTICS

To carry out the program outlined briefly above, the 1963 estimate for the National Center for Health Statistics is $5,250,000. The details of this estimate and a breakdown, into separate projects, has been presented in our detailed justification.

I would be glad to answer any questions about the program or estimates that the committee may have.

Dr. LINDER. Mr. Chairman and members of the committee, the National Center for Health Statistics is only a little more than a year old, but I am happy to be able to report to you that in this time, we have made substantial progress toward the goal established for us by the Surgeon General—that of being the major statistically oriented, factfinding unit of the Public Health Service.

ELECTRONIC COMPUTER FACILITY

The first step in this program was to start a renovation and modernization of our data processing methods so that all the data could be made available on a current basis. The Office of Electronic Systems has completed the first phase of installation of a modern high-speed electronic computer and the conversion of our tabulation work to this computer is underway. The conversion of all our procedures will take several years but we are now confident of success. Results of this development will begin to appear in 1963. The 1963 estimates show the computer facility at its anticipated continuing level of full operation.

DATA ANALYSIS

The second major objective of the new center is to give added emphasis to the analysis of our data. We do not meet the needs if we merely collect and publish large volumes of figures. We have the added responsibility of relating these statistical findings to major health questions. The Office of Health Statistics Analysis is already engaged in what I believe will be far-reaching studies of death-rate trends and general indexes of national health status. This kind of small investment in thinking about the significance of our collected data will, I believe, pay handsome dividends.

The program of the national health survey continues to develop along the lines anticipated by the National Health Survey Act of 1956. The health examination survey will complete its first cycle in 1963 with analysis and publication of data collected, and will then start an examination survey of the health and physical status of children. In addition, the 1963 estimates provide for continuing the survey of the aged population in resident institutions, which is being initiated in 1962, and for making other surveys based on existing medical records.

VITAL STATISTICS

With regard to the National Vital Statistics Division our goal has been to reorganize and revitalize this work. It is here that the major work of modernization of method has been focused but some substantive changes are also needed. Vital statistics have always been limited by the fact that very little scientific information can be included on the legal birth and death registration document. The invention of sample followback survey methods has broken through this barrier and now at very little cost we can add greatly to the kind of information that can be obtained from the vital statistics system. The 1963 estimates provide for a reinforcement of this sample survey program. The estimates also provide for an increase in the sample size of our marriage and divorce compilations. I think I may predict that the United States is on the threshold of a major marriage boom which will have an enormous impact on the economy of this country. As this boom develops we must be in a better position to see what is going on than we are at the present.

1963 BUDGET

The total appropriation estimate for the National Center for Health Statistics for 1963 is $5,250,000 which is an increase of $755,000 over the amount available for 1962. This estimate is the first budget request fully reflecting the program of the new national center. I would be glad to describe more fully the objectives and functions of the center and attempt to answer any questions that you may have regarding its work.

Mr. Fogarty. Doctor, the appropriation for 1962 is $4,642,000, and the request for 1963 is $5,250,000, an increase of $608,000.

PROGRAM DEFICIENCIES

I notice several places in your justifications where you refer to deficiencies in your current program.

Do you feel your program is falling short of fulfilling current needs?

Dr. LINDER. I think under the estimates we have here for 1963 these deficiencies will be largely met. Our major deficiency in the vital statistics part of the program has been the compilation work, which is an enormous volume and has always been very far behind. We are giving top emphasis this year and next year to trying to get that on a current basis and we are looking to the computer installation to do that for us. The computer does not solve all questions, but we are very hopeful it will resolve this one.

Mr. FOGARTY. You will be able to show results in 1963?

Dr. LINDER. Yes.

EFFECT OF RESERVE

Mr. FOGARTY. How much of these deficiencies are due to the reserve for savings of $147,000?

Dr. LINDER. The reserve of $147,000 represented something like 3 percent of our appropriated amount. We attempt to soften the impact of that reserve by spreading it over a number of our program items.

Mr. FOGARTY. Supply for the record where you spread it, and if you spread it into any of these areas where these deficiencies you mentioned and that are set forth in the justifications.

Dr. LINDER. All right; we will provide a statement for the record on that.

(The information requested follows:)

Distribution of $147,000 administrative reserve placed against the 1962 appropriation for national health statistics

Organization unit	Original distribution of fiscal year 1962 appropriation	Distribution of fiscal year 1962 funds after administrative reserve	Decrease
Office of the Director	$100, 400	$95, 700	−$4, 700
Office of Health Statistics Analysis	86, 100	79, 600	−6, 500
Office of Electronic Systems	203, 200	172, 200	−31, 000
National health survey:			
Health examination survey	851, 700	834, 000	−17, 700
Health interview survey	1, 100, 300	1, 075, 700	−24, 600
Health records survey	100, 600	94, 100	−6, 500
Other activities	405, 000	392, 000	−13, 000
Total, National Health Survey	2, 457, 600	2, 395, 800	−61, 800
National vital statistics:			
State relations (registration methods, conferences and training)	159, 900	151, 100	−8, 800
Professional analysis (natality, mortality, marriage, and divorce, Survey and Actuarial Branches)	279, 100	262, 500	−16, 600
Data processing and procurement (Statistical Operations and Computer Applications Branch)	1, 097, 600	1, 095, 900	−1, 700
Other activities	258, 100	242, 200	−15, 900
Total, National Vital Statistics	1, 794, 700	1, 751, 700	−43, 000
Total National Health Statistics	4, 642, 000	4, 495, 000	−147, 000

Of the program areas noted above, difficulties have already been encountered because of limitations of the 1962 budget in the health interview survey and the health records survey. The health interview survey has temporarily suspended its quality controls on interviewing, and the health records survey has delayed the development of an institutional master facility list and protracted a survey of resident places providing medical and nursing care. Adjustments to accommodate the administrative reserve in the health interview survey were primarily of a peripheral nature and do not impinge on program substance. This is also substantially the case in the health records survey, although the indicated delays in implementing programs may be made slightly longer because of the administrative reserve.

Most of the savings reflected in the table are being accomplished through the postponing of entrance on duty dates for new personnel, thus delaying some aspects of program development rather than abandoning them. Smaller amounts will be saved through delaying into 1963 a death registration completeness study, and reducing the level of supply and equipment purchases.

ACTIVITIES CUT IN 1962, BUDGETED FOR INCREASE IN 1963

Mr. Fogarty. Which activities that are cut back by this reserve are now budgeted for increases in 1963?

Dr. Linder. The major item we had to retard on account of the reserve was the program that we are developing for a survey of aged population in resident institutions.

This was planned to go ahead this year at a very rapid pace and we are still going ahead with the planning, the pretesting, and the development of this program but we did slow it down a little bit.

This survey is an attempt to make an inventory of the nursing homes throughout the country and the other institutions where people live for medical reasons and to study the population resident in these institutions from the standpoint of how old they are, why they are there, how long they have been there, and other factors relating to their residence. That, I would think, was the major project that we slowed down because of the reserve.

We also delayed somewhat the installation of our computer system that we originally scheduled for October 1, but on which we did not actually start paying rent until the middle of December and this saved us a little money.

Mr. Fogarty. It saved you a little money, but you lost a lot of time. Do you think that is going to save you money in the long run?

Dr. Linder. We hope to recapture that time. The computer is now fully utilized.

Mr. Fogarty. How are you ever going to catch up on that amount of time that is lost?

Dr. Linder. We are working overtime already on the computer.

Mr. Fogarty. How much overtime is being paid?

Dr. Linder. I would have to check up to see just what the overtime amount is at the moment.

(Overtime costs for operating the center's computer during the period January 1 to April 30 are estimated at $8,200.)

Mr. Fogarty. I think this is another example where the reserves are going to hurt your program in a way that will make it impossible for you ever to make it up. It is going to cost you more money in the long run. And this is another example of what we have been calling the off-again on-again approach. That is what I call it.

INCREASES FOR SURVEYS

A major part of your increase is for your surveys; $119,300 for the health examination survey, $84,700 for the health interview survey and $171,900 for the health records survey.

Will you supply for the record a statement on each of these increases?

Dr. Linder. Yes, sir.

Mr. Fogarty. Tell us how these surveys differ from each other. You can do that for the record.

(The information requested follows:)

STATEMENT OF INCREASES REQUESTED FOR THE NATIONAL HEALTH SURVEY AND DESCRIPTION OF DIFFERENCES IN SURVEYS

The requested increase for the health examination survey is for (1) extending the survey to cover a proportionate share of the population of Indians on reservations ($35,000); (2) proceeding into the analytical phases of the program ($59,000); and (3) preparatory work on the second cycle of the survey which will be designed to sample the health of the child population ($25,300).

The health interview survey increase is scheduled for (1) restoring certain quality controls which were eliminated in the current fiscal year in order to provide resources to operate the health examination survey at previously planned levels ($45,000); (2) several supplementary studies using the health interview survey as a base; e.g., a study of persons with hearing impairments and a start on a followup of persons reported to have visual impairment ($30,000); and (3) one additional analytical statistician and a small increase in printing and staff travel ($9,700).

The health records survey increase of $171,900 is primarily for the purpose of collecting health statistics from the sources of medical care and to begin processing of the data. The bulk of the increase ($154,000) is for the purpose of collecting data from the records of hospitals, from nursing homes, and from other medical care institutions on a national sample basis. The remaining $17,900 is for the purpose of employing three additional statisticians to determine processing techniques and to begin work on analysis.

The basic differences between the three surveys are in the types of data collected, the sources from which the data are obtained, and the field methods employed. Each of the three collects health statistical information which either cannot, or cannot so reliably, be collected by the other two.

The health examination survey emphasizes the measurement of disease and medical and dental characteristics by the most reliable clinical methods. It also attempts to determine the existence of previously undiagnosed disease of certain types. The source of the information is a physical examination and a battery of standardized clinical tests and measurements performed upon samples of people. The present examination is being given to a national sample of 6,000 adults and covers heart disease, arthritis, diabetes, visual and hearing acuity, condition of teeth, and also includes blood pressure, blood cholesterol, skinfold thickness, various body dimensions, and similar characteristics. An examination of a sample of children is now being planned.

The health interview survey emphasizes measures of disability, incidence of acute illness, accidental injuries, use of medical and dental care, health insurance coverage, and other topics related to the social and economic aspects of morbidity and medical care. The families themselves are the source of the information and the data are collected by means of household interviews in samples of approximately 36,000 households a year. Demographic and social characteristics, such as occupation, education, income, farm residence, veterans status, and the like, are also obtained in the interview.

The health records survey emphasizes the details of the medical care being provided to samples of persons. Here the source of the information is the establishments which provides the medical care. Much of the data gathered will come from sampling medical care institutions and, within the institutions, sampling either patients or existing medical records. The records of hospitals, nursing homes, homes for the aged, and similar places will be sampled. This survey is just getting underway.

STATISTICS ON PNEUMONIA TRENDS

Mr. Fogarty. Do you have any statistics on the pneumonia mortality trend in recent years?

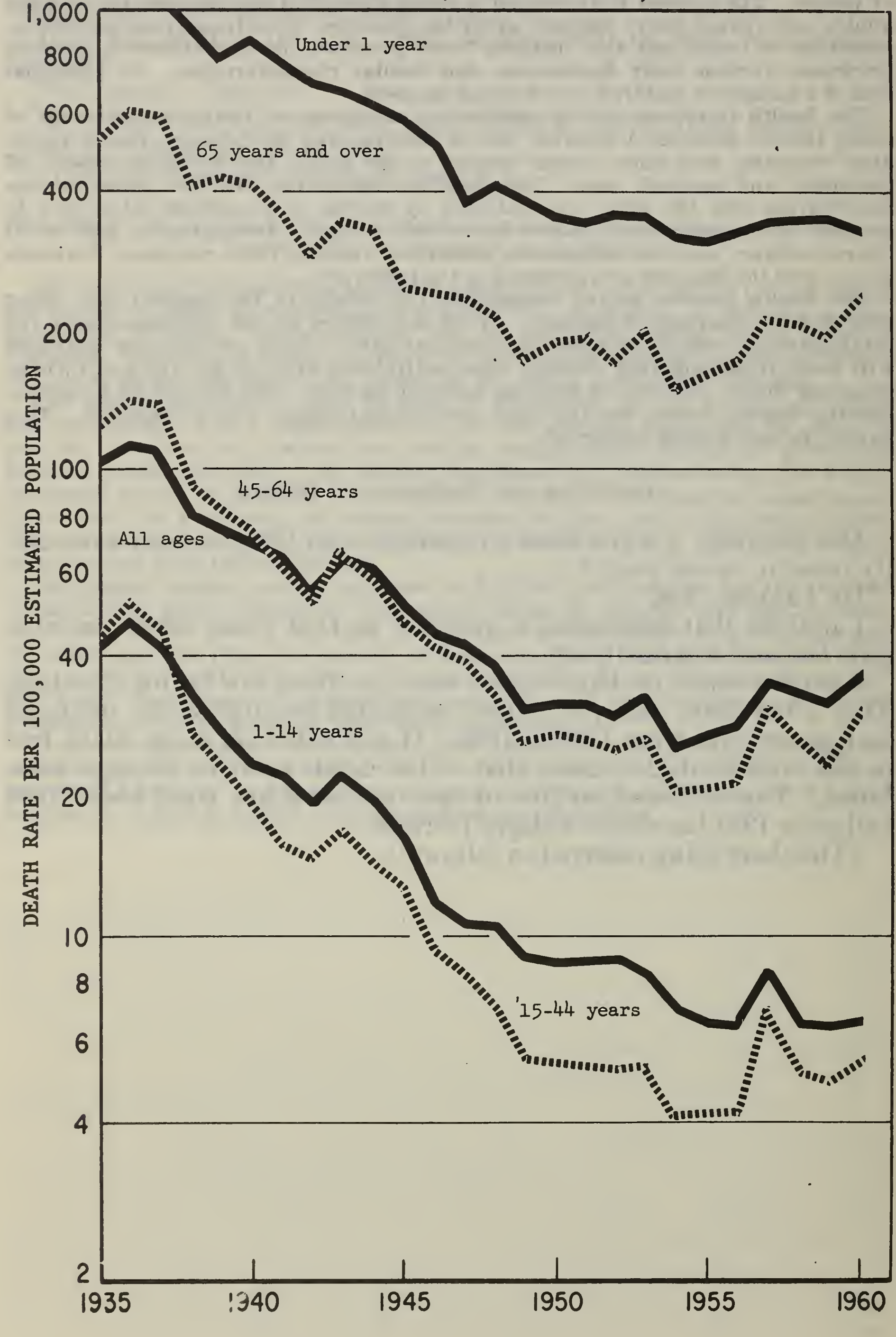
Dr. Linder. Yes.

I noticed that you asked a question on that point when the Surgeon General was testifying.

I made a chart to demonstrate what the facts are in this situation. This is the death rate per 100,000 estimated population for influenza and pneumonia from 1935 to 1960. If you will look at the black line in the middle of the chart, that is the death rate for all ages combined. You will see that line in fact reached a low point about 1954 and since 1954 has shown a slight increase.

(The chart being referred to follows:)

DEATH RATES FOR INFLUENZA AND PNEUMONIA, INCLUDING PNEUMONIA OF NEWBORN BY AGE, UNITED STATES, 1935-60



Mr. FOGARTY. What do you call a slight increase?

Dr. LINDER. It has shown an increase, at least. I do not know whether it is a slight increase or a large increase. It is actually an increase from 25 to 36. That would be about 40 percent.

Mr. FOGARTY. That is a pretty significant increase.

Dr. LINDER. That would be a rather substantial increase.

Mr. FOGARTY. Why is it showing this sort of increase?

Dr. LINDER. I was thinking it was a rather slight increase relative to the drop that has occurred in the past in the general curve.

Mr. FOGARTY. Why is this showing this increase? Do you know why? Are you trying to find out why?

Dr. LINDER. These kinds of questions go somewhat beyond the domain of a statistical unit. We can describe what is going on. We can try to break it down into its components to somewhat put our finger on the cause.

Mr. FOGARTY. What happens, then?

Dr. LINDER. Then it is up to the medical part of the PHS to pick up these clues.

Mr. FOGARTY. Who?

Dr. LINDER. It would be up to the Surgeon General to say that.

Mr. FOGARTY. What have you done about it, Doctor?

Dr. TERRY. I do not know that we have done anything in terms of specifically analyzing these data. I think one has to take into consideration that this is the death rate for influenza and pneumonia. There are many factors which participate. One of the factors that we have to take into consideration, for instance, is the attack of Asian influenza that we had along in 1957 and 1958 which no doubt accounts for the sharp rise shown on this chart. I think in many respects we are probably getting better reporting and in getting better reporting we are getting a clearer picture and some of the apparent differences may not be real differences, Mr. Fogarty, but I do not really know.

Mr. FOGARTY. Are you trying to find out?

Dr. TERRY. Yes, sir.

Mr. FOGARTY. Will you let the committee know?

Dr. TERRY. Yes, sir.

Mr. FOGARTY. Mr. Marshall?

INCREASES FOR SERVICES OF OTHER AGENCIES

Mr. MARSHALL. In your justifications, you have an item of services of other agencies. In 1962 you had $1,337,000; in 1963 you are asking for $1,595,200, an increase of $258,200. Where would I find the justifications for this item in your budget presented to us?

Mr. KELLY. He is referring to page 203, Dr. Linder.

Dr. LINDER. The breakdown of that item is not included in the papers you have, but we could either supply it for the record, or I have it here and I could give you the major items now.

I might say that the major item included in the increase is related to the procurement of data and the fieldwork for what we call our health records survey.

That is the survey I referred to a minute ago when I was talking about our survey of aging population in resident places giving nursing care. In other words, we are now engaged in the design and plan of this survey where we will go out and in effect take a census of a sample of institutions of all kinds where there is a resident population living for medical reasons and the collection of this data will involve contractual work with the Census Bureau and a number of other operations that will increase the data-collection costs.

Of the amount that you refer to, $154,000 is for that item.

The other increases in that item are a variety of special studies, mostly of a methodological character, related to the survey program. One of them involves a small amount of money for the preparation of the second cycle of our health examination survey, where we are going to examine children.

Mr. MARSHALL. It would be satisfactory to me if you would put a breakdown of this figure in the record.

Dr. LINDER. All right.

(The information requested follows:)

Detail of increase of $258,200 for services of other agencies

	1962 estimate	1963 estimate	Increase
Services of other agencies	$1,337,000	$1,595,200	$258,200
Procurement of data and development of pretesting procedures for the health records survey			154,000
Reinstitution of quality controls on the health interview survey			45,000
Health interview survey supplementary studies, e.g., blindness, deafness, and the cost of medical care			30.000
Preparation for second cycle of the health examination survey			10,000
Methodological evaluation of the validity of the health interview survey			44,000
Special contract for examination of a sample of the Indian population living primarily on reservations			35,000
Offset for savings resulting from a reduction in the volume of vital records processed on a contractual basis			−59,800
Total			258,200

NOTE.—All of the above-mentioned contracts will be performed by the Bureau of the Census.

EXAMPLE OF REIMBURSABLE SERVICE ARRANGEMENT

Mr. MARSHALL. I would like you to give me one example of an agency where you have entered into an arrangement providing funds out of this.

Dr. LINDER. We have a large number of reimbursable or contractual arrangements with governmental agencies and with universities and other agencies of that type.

Mr. MARSHALL. When you say "other agencies," are you referring to any other Federal agency?

Dr. LINDER. To a small extent, but the primary one is the Census Bureau.

Mr. MARSHALL. Please give me an example of one Federal agency that you transact business with in order that I get a little clearer in my mind what this means.

Dr. LINDER. I think the only example that comes to mind is in our health examination survey where we take care of a number of physical records in this way.

Mr. MARSHALL. What agency?

Dr. LINDER. We have some of those records read, I think, by the NIH, or one of the Institutes at NIH is reading some of the clinical findings for us on this examination.

Mr. KELLY. You might describe the Census Bureau operation.

Dr. LINDER. The Census Bureau is the one that takes probably 90 percent of this money. We have a continuing reimbursable arrangement with them for which we pay well over a million dollars a year—I think $1,300,000 or a figure of that kind.

What they do for us is this: In our health interview survey, we go over the country and interview in something like 40,000 households each year; now instead of setting up ourselves a field organization with all the overhead and training and recruiting problems that we would have, we contract with the Census Bureau to use their field organization, which is already in existence and experienced in this type of survey work.

They have on a part-time basis some 120 interviewers who work for us doing this work. They collect that material and bring it back into the Census Bureau. They do a lot of the coding for us and produce a computer tape for us. This year still we will be tabulating that material on the Census Bureau computers.

The contractual reimbursement for that whole operation involves over $1 million. Also, we have a number of other reimbursable arrangements with the Census Bureau for varying sums of money.

Mr. MARSHALL. Thank you.

Mr. FOGARTY. Mr. Michel?

CRITERIA FOR INFORMATION GATHERING

Mr. MICHEL. I realize that there is certainly a need for valuable and accurate statistics, and in an area of this kind it can pretty well run the gamut of everything from soup to nuts. I am wondering first of all who makes the decisions as to what kind of information you want to gather statistics on.

Dr. LINDER. Well, as you intimate, this is perhaps our most difficult problem. We are a general purpose statistical agency. Our clientele is not just the Public Health Service; it represents every phase of the medical and health care profession at the Federal, State, local, and private level, including industry, and voluntary health agencies.

Mr. MICHEL. What system of priorities have you established, if any, to make the determination as to whether you go into this area, that area, or whether this one is deferred or whether you will put on so many more employees to do this job because this is a particular pressure group? What are the considerations?

Dr. LINDER. This comes down to my judgment on what can be accomplished and what is the best thing to accomplish with the resources we have.

I make the decision. The judgment that I make is based on a number of advisory committees that we have set up for these organizations. The primary advisory committee, for instance, for the National Health Survey consists of 25 outstanding people, outside the Government, representing every phase of the medical profession, the health care profession, the voluntary health agencies, the public health associations, the hospital associations—the whole gamut from the manufacturers of drugs to public health nurses. These people meet once a year. We present our problems to them. We present the alternative subjects that we might go into and then we seek their advice.

COMPARATIVE ANALYSIS OF DEATH RATE TRENDS

Mr. Michel. What, for example, would have gone into the decision to make a comparative analysis of recent trends in the death rate? Who would have been interested in that?

Dr. Linder. I was interested in that because I noticed in looking at the death rate over the past 6 years that there has not been any substantial decline since 1954 in the death rate for the United States. I thought that we should have to explain sometime or other why the death rate in the United States was not going down. So we started to look into the question of whether this was due to the aging population, just more old people. We found out that that is not the reason. We started to look into what was happening in other countries and we found very much to my surprise that this flattening of the death rate curve is also happening in other advanced countries of the world and to some extent possibly in some of the countries of the world that still have a death rate at a much higher level than we have.

People are interested in this. This committee itself has asked the question of why the U.S. death rate is not the lowest in the world, and I am sure it is interested in whether the death rate is going down or whether it has stopped going down.

It is certainly our responsibility to find out what we can about it. Why isn't the death rate going down at the moment? Is it because under our circumstances we have hit something of a floor and that we cannot do any better? Obviously the rate cannot go to zero but maybe it has not gone down as far as it should. This reference in our justification is to a study that was undertaken, or is now underway by our new office of Health Statistics Analysis to see what we can tell from the statistics about what has happened to the death rate in the last 7 or 8 years. We are working with colleagues in England, in the Netherlands, in Scandinavian countries, and in one South American country that has a good registration system. They are also interested in this and collectively we are trying to see whether we can find out what is happening.

DISSEMINATION OF STATISTICAL INFORMATION

Mr. Michel. Do you put out any kind of a regular bulletin on these findings? These statistics do not mean anything unless they are being used by someone for some good purpose. How does the information get disseminated to the general public or to the people who are really interested in what these figures disclose?

Dr. Linder. As I said, we are a statistical agency with no program of our own except to produce statistics for these consumers, so our major concern is publishing statistics and giving it out and into the hands of the people who have a legitimate interest in it.

Mr. Michel. What do you contemplate publishing? I realize you are a new organization but what do you anticipate in the form of publishing this information?

Dr. Linder. While the center is a new organization, the component parts of it are not new. The National Health Survey started in 1956 and we publish a series of publications called Health Statistics. These cover a wide range of topics according to different subjects and are distributed to a wide audience.

The Vital Statistics Division has a publication history going back to 1904. They publish two large annual volumes giving great detail or causes of death, age at death, location of death, State figures, county figures, city figures; and in addition to this quite a number of mimeographed reports for special and smaller topics.

MARRIAGE AND DIVORCE RATE FINDINGS

Mr. Michel. What do you expect to find from the study on marriage and divorce rates? It says here on page 8 of your complete testimony:

> One of these relates to marriage and divorce statistics. The present program in this area is based on a sample of less than 60,000 and is entirely inadequate to reveal the detail of important national trends.

Is this a justification for an expansion, to get a broader base of information?

Dr. Linder. Yes.

As I said in my summary, I think I can predict with a great degree of surety that we are facing a marriage boom in this country that will have an enormous impact on the demand for housing, the demand for furniture, and shortly thereafter a new demand for baby carriages and other things.

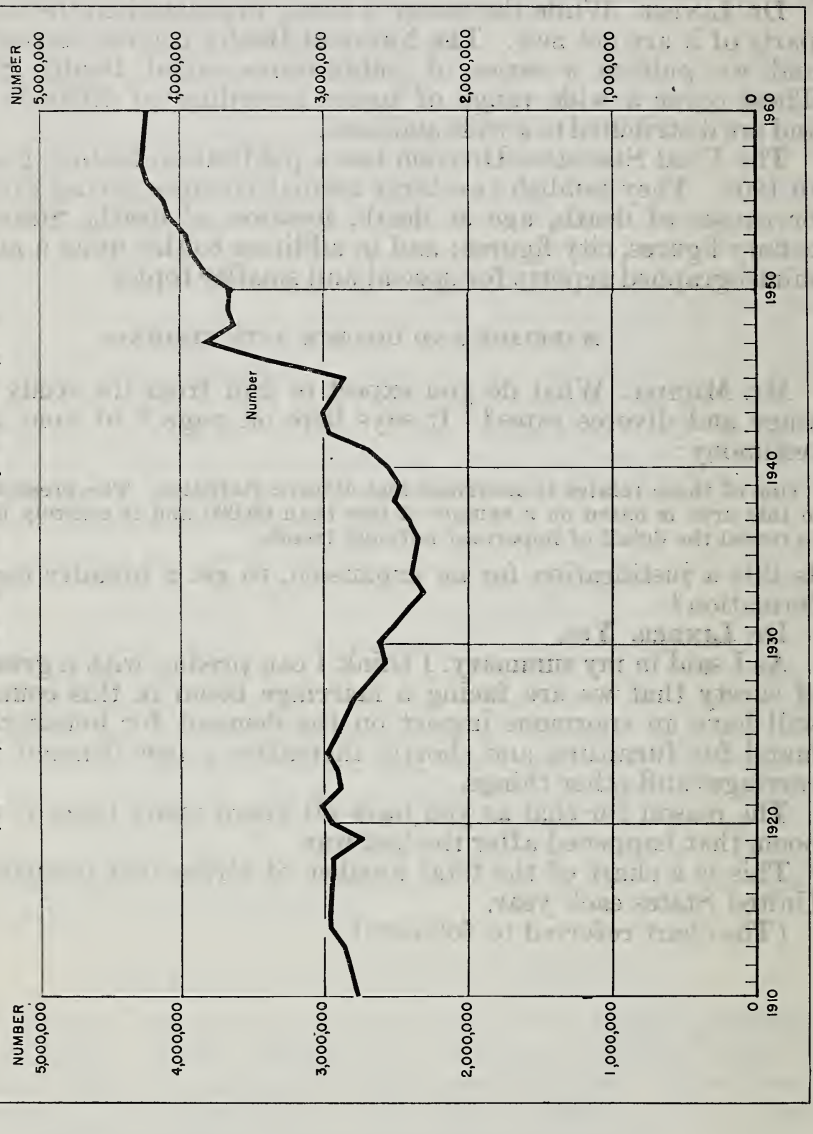
The reason for that as you have all heard many times is the baby boom that happened after the last war.

This is a chart of the total number of births that occurred in the United States each year.

(The chart referred to follows:)

LIVE BIRTHS ADJUSTED FOR UNDERREGISTRATION: UNITED STATES, 1910-60

(Includes adjustments for States not in the birth-registration area prior to 1933)



Dr. Linder. If you will notice the total number of births was down to something around 2½ million in the mid-thirties and is now up to 4¼ million, approximately.

The people getting married today are those who were born around this 1940 point and there weren't very many of them at that time. In the next few years, as these people who were born before, during, and after the war move into the marriage age, you can by looking at this chart guess yourself what is going to happen—a tremendous increase in the number of marriages.

Our marriage statistics program is based on a sample. It is a sample of 40,000 for marriages and some 20,000 for divorces. That means that we have only 40,000 marriage records and when we tabulate those by State and then break them down by age of husband and age of wife and other variables the sample is too small to be reliable.

People are interested in this subject. The question of whether people are getting married at younger ages—the teenage marriage—the question of whether people will start postponing their marriages when this boom starts and thereby slow down the boom a little bit—all of these types of ideas derive from an analysis of the age structure and the location structure and the urban-rural structure of where and when pepole are getting married. A sample of 40,000 is too small to do this.

Mr. Michel. What do you think it should be?

Dr. Linder. Under this proposal I am suggesting that we double it in 1963. That is still a very small sample.

Dr. Terry. I think it should be pointed out that this does not represent a duplication of effort, for instance, of the Census Bureau, but this is a feature that has been transferred to the vital statistics portion of the Public Health Service. You might elaborate on that a little, Dr. Linder, to let him understand that this is clearly our area of responsibility, though we work with the Bureau of the Census. It is a clearly delineated and not a duplicated mechanism.

Dr. Linder. The Census Bureau collects information on marital status only once every 10 years and that gives a baseline from which to work, but the current figures on marriage records and divorce records is an integral part of the State vital statistics system. The same mechanism and the same people are involved as are involved with the tabulation of death and birth records. Since these are the responsibility of the public health offices at the State level, marriage and divorce statistics come into the area of responsibility of health agencies. There is no duplication or conflict on this with the work of the Census Bureau.

STANDARDIZATION OF STATISTICAL INFORMATION

Mr. Michel. Do you find a wide variance between the States as to what information you get from them in making some of your own calculations?

Dr. Linder. This is something I think I can be a little proud about. I think in this area of vital statistics we have one of the best examples of Federal-State cooperation that can be pointed out and it goes way back. It goes clear back to the beginning of the system in 1904.

The Federal Government in vital statistics has no authority, no regulatory powers of any kind with reference to vital records. This is a State function, but over the period of years our office has developed standard patterns. We have developed model legislation, model certificates. We then have a group of States that we call a registration area to adopt these model forms.

Gradually, year by year, States come into this registration area until it includes the whole country. The death registration area was completed and covered the whole country in 1933. The birth registration area covered the whole country in 1933. The marriage registration area includes 35 States at the present time. It was only started in 1957. It is a brandnew venture. The divorce registration area includes only 15 States at the present time.

Mr. MICHEL. Are those pretty well scattered throughout the country or are they in a particular section of the country?

Dr. LINDER. There is no geographic pattern to them. It just happens to include those States which adopt the model legislation and the model rules and regulations.

PROJECTED ANALYSIS OF DIVORCE STATISTICS

Mr. MICHEL. What do you hope to find in those divorce statistics? What group wants what information from those particular statistics?

Dr. LINDER. I think it is mostly the people that are concerned with the reasons for dissolution of marriage, the legal people, and also the welfare groups who are interested in how many dependents there are, what the family structure of a divorced couple is. Of course, we do not get very much on cause of divorce. What we get is just the legal cause. It does not tell you too much. We get quite a bit out of this whole program. It is a modest program. It does not cost very much.

Mr. MICHEL. You feel the time and the effort expended in this particular area is justified by what good results might come of those statistics?

Dr. LINDER. Well, I think maybe I can answer that by reference to the fact that among the developed countries of the world our marriage and divorce statistics are among the worst. In other words, other countries have much higher developed programs of facts with reference to family formation and dissolution than we do.

Mr. MICHEL. That is all, Mr. Chairman.

Mr. FOGARTY. Thank you very much.

WEDNESDAY, FEBRUARY 21, 1962.

NATIONAL LIBRARY OF MEDICINE

WITNESSES

DR. FRANK B. ROGERS, DIRECTOR, NATIONAL LIBRARY OF MEDICINE

DR. LUTHER L. TERRY, SURGEON GENERAL

Object classification

[In thousands of dollars]

		1961 actual	1962 estimate	1963 estimate
	PUBLIC HEALTH SERVICE			
11	Personnel compensation:			
	Permanent positions	1,254	1,281	1,402
	Positions other than permanent	4	5	6
	Other personnel compensation	12	14	14
	Total personnel compensation	1,270	1,300	1,422
12	Personnel benefits	95	101	110
21	Travel and transportation of persons	19	19	22
22	Transportation of things	1	5	3
23	Rent, communications, and utilities	43	50	43
24	Printing and reproduction	137	113	122
25	Other services	278	694	891
	Payment to "National Institutes of Health management fund"	------------	140	318
26	Supplies and materials	47	65	87
31	Equipment	94	96	92
41	Grants, subsidies, and contributions	123	225	225
	Total, Public Health Service	2,107	2,808	3,335
	ALLOCATION TO LIBRARY OF CONGRESS			
11	Personnel compensation: Other personnel compensation	8	------------	------------
	Total obligations	2,115	2,808	3,335

Personnel summary

	1961 actual	1962 estimate	1963 estimate
Total number of permanent positions	227	234	250
Full-time equivalent of other positions	1	1	1
Average number of all employees	219	222	237
Number of employees at end of year	220	225	244
Average GS grade	6.3	6.3	6.6
Average GS salary	$5,699	$5,746	$5,897

Program and financing

[In thousands of dollars]

	1961 actual	1962 estimate	1963 estimate
Program by activities:			
Library services and resources (total program costs) [1]	2,090	2,827	3,335
Change in selected resources [2]	26	−19	
Total obligations	2,115	2,808	3,335
Financing:			
Comparative transfers from other accounts	−392	−912	
Unobligated balance lapsing	14	170	
New obligational authority (appropriation)	1,738	2,066	3,335

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[1] Includes capital outlay as follows: 1961, $91,000; 1962, $99,000; 1963, $94,000.

[2] Selected resources as of June 30 are as follows: Unpaid undelivered orders, 1960, $49,000; (1961 adjustments, −$8,000); 1961, $67,000; 1962, $48,000; 1963, $48,000.

Mr. **Fogarty.** Please proceed, Dr. Rogers.

General Statement

Dr. **Rogers.** Mr. Chairman, I have submitted a prepared statement but I would like to say a few things.

(The complete statement of Dr. Rogers follows:)

Statement by Frank B. Rogers, M.D., Director, National Library of Medicine, on National Library of Medicine

Mr. Chairman and members of the committee, the present submission reflects the Library's response to the urgent challenge to provide information services adequate to national needs in the field of the basic and applied medical sciences. For a hundred years the Library has acted as a national and international reservoir of the published literature of the medical sciences. Its indexing activities for 80 years have provided physicians with a fundamental mechanism for searching the literature. With the imminent move to Bethesda the National Library of Medicine enters upon a new era in its history. It will be as never before in a position to capitalize on the public's investment in its mammoth collections and to meet the responsibility explicit in its mission.

MOVE TO BETHESDA

The Library's new building was dedicated on December 14, 1961. The general contractor and the Public Buildings Service have given assurance that the building will be substantially completed by March 1, 1962. By April 16 the Library expects to be fully operational at Bethesda. All of the staff and collections will then be under one roof for the first time since the early days of World War II, when the rare book collection of 35,000 volumes was moved to Cleveland, Ohio, as a protective measure.

MEDICAL LITERATURE ANALYSIS AND RETRIEVAL SYSTEM

With the experience gained from the mechanization of copy preparation for Index Medicus, and with adequate physical facilities soon to be available, the Library has turned to the development of a computer-based system for strengthening its bibliographical services. Encouraged by support from the Board of Regents, the National Heart Institute, and the National Heart Council, the Library solicited proposals from 40 commercial and nonprofit organizations for the study, design, installation, and trial operation of an electronic data processing system with extraordinary capabilities for the rapid organization and retrieval of bibliographical citations to the medical literature. On August 14, 1961, the Defense Systems Department, General Electric Co., was awarded a contract to design such a system. On January 31, 1962, this preliminary design phase of the medical literature analysis and retrieval system (MEDLARS) project was successfully concluded. The Library is now engaged in the second detailed design phase of this project which will be completed by January 1963. The final or implementation phase of the program is scheduled to commence September 1, 1962, and end in September 1963, with a fully operational system in being. Increased benefits of the computer system will include the facility to serve special recurring bibliographies, handle an increased citation load, permit increase in depth of indexing, reduction in processing time, and reduction in duplication of literature screening.

CURRENT BIBLIOGRAPHIC SERVICES

The library continues to publish its outstanding Index Medicus. During the past year coverage of this index to journal literature increased to 130,000 journal articles, and the Government Printing Office received 1,000 new subscriptions raising distribution to 7,500 copies monthly. The second annual Cumulated Index Medicus will be published this spring. In 1962 coverage of the Index Medicus will rise to 150,000 journal articles, and in 1963 to 165,000 journal articles.

Other major biblographic aids prepared by the library during the past year include: Bibliography of Medical Reviews, volume 6, a cumulative issue of the previous 5 volumes, plus 3,300 new items, for a total of some 15,000 review articles; National Library of Medicine Catalog, 1960, listing 18,219 main entries; the final 2 volumes of the Index Catalog of the Library of the Surgeon General's Office, listing 120,000 subject titles; Russian Drug Index, listing 650 entries and an index of drug names including 2,500 synonyms; Russian Surgical Staplers, containing 136 abstracts of journal articles on stapling and suturing techniques used in surgery; and Early American Medical Imprints, 1668–1820, a guide to 2,106 early works printed in the United States.

INTERLIBRARY LOAN SERVICES

Interlibrary loan activity continued an upward trend in the number of requests fulfilled for photocopy of journal articles. In fiscal year 1961 loans increased 13,663 over 1960, for a total of 109,258. Of the total loan activity, 51 percent of all requests went to non-Government libraries, 36 percent went to Government libraries, and the remaining 13 percent went to foreign libraries.

PUBLICATIONS PROCUREMENT AND INTERNATIONAL EXCHANGE

In 1961 the Library acquired 86,919 new pieces of the world's medical literature, including 1,336 new serial titles. Acquisition of Russian literature continued through the publications procurement officer in Moscow, direct exchange with libraries in the Soviet Union, and purchase from commercial book dealers. The library sent its chief procurement officer to the Soviet Union last May under the provisions of the United States-U.S.S.R. Cultural Exchange Agreement and at the invitation of the Soviet Ministry of Health. The purpose of this visit was to study the organization of the Soviet medical library system and to foster exchange of medical literature.

SCIENCE TRANSLATION PROGRAM

On July 1, 1961, the Russian scientific translation program was transferred from the National Institutes of Health to the National Library of Medicine. This change presents a new challenge to the library and affords an opportunity to coordinate and improve international medical communication activities. The fundamental objective of the science translation program is to communicate the results of high-quality medical research published in languages unfamiliar to American medical scientists. This program has supported the cover-to-cover translation of nine Soviet research journals, the comprehensive abstracting of Soviet research publications, and the preparation and publication of critical review papers. As a result of an extensive program evaluation begun early in 1962, the program may undergo some modification, stressing the coverage of such literature by abstracts and critical reviews. While full attention will be paid to Soviet contributions, the program will support translation and other communication activities from such languages as Japanese, where the quality of research is high. These activities will be closely coordinated with the Public Law 480 translation program conducted by the library, and with similar programs conducted by the National Science Foundation.

BUDGET ESTIMATE FOR 1963

This estimate of $3,335,000 reflects an increase of $527,000 over the estimated obligations for 1962. The major part of this increase is requested to complete the development and testing phase of the MEDLARS project, and to operate and maintain the new building for a full year. In addition, the increase provides for some small expansion of indexing and translation services, continuation of interlibrary loan and reference services at satisfactory levels, and additional staff assistance in program and administrative activities of the Library.

Dr. ROGERS. It was just 5 years ago when I first presented the needs of the National Library of Medicine before this committee, and all during that period a constantly recurring theme has been our hopes and plans for the library's new building.

NEW BUILDING

I am glad to report today that the building is now substantially completed. As you know, the building was dedicated in December, on the occasion of the 125th anniversary of the library's founding. All stack shelving has now been installed and the first shipment of new furniture and equipment was delivered last week.

Moving contracts have been let and moving will begin on March 5, to continue for about 60 days. The main portion of the move will occur around the middle of April, and by April 16 the library expects to be operational at the Bethesda site.

Mr. FOGARTY. Are you going to have an open house?

Dr. ROGERS. We are going to have several open houses.

All of the staff and collections will then be under one roof since the first days of early World War II when the rare book collection of 35,000 volumes was moved to Cleveland as a protective measure.

That will be a great deal for the library and we trust for the medical community which it serves.

Now, as never before in recent times, the library will be in a position to capitalize on the public's investment in its mammoth collections and to meet the responsibilities implicit in its mission.

BUDGET ESTIMATES, 1963

The budget estimates of $3,335,000 reflect an increase of $527,000 over the estimated obligations for 1962. This increase may be accounted for under three major headings, and I would like to discuss each briefly in turn.

First, $178,000 is needed to operate and maintain the new building for a full year. During the current year we have had some expenses since last November and the full range of maintenance and utility services will become available in March.

We estimate that the charges through June of this year will amount to $140,000 and that the next full-year requirement will come to $318,000. These moneys are transferred to the National Institutes of Health management fund to reimburse NIH for the services rendered.

Second, we are requesting $130,000 for 16 new positions on the staff, which will raise our authorized ceiling from the present 234 to 250. While the library's services have increased enormously over the past decade, and while the library has been performing new jobs, and old jobs to increased breadth and depth, the fact of the matter is that the library staff is now smaller and has been smaller during the entire decade than it was shortly after I became the library's Director in 1950. We need additional people to help improve our program management, to give the assistance needed if we are to discharge our tasks effectively. Likewise, the increased program responsibilities of the library have placed heavy demands on its small administrative staff in the areas of budget formulation and execution, personnel management, and procurement and general services. We urgently need to bolster our capabilities in these areas and I hope the committee will look favorably on this request.

Third, the remainder of the increase is accounted for by further development of the MEDLARS program, begun during this year.

Mr. FOGARTY. What is that?

Dr. ROGERS. I would like, if I may, to discuss this in somewhat more extended fashion.

MEDICAL LITERATURE ANALYSIS AND RETRIEVAL SYSTEM

MEDLARS is an acronym standing for "medical literature analysis and retrieval system." The ideas behind MEDLARS began to emerge and coalesce at about the time the library was completing its index mechanization project in early 1960, the published report of which was presented to this committee last year. In late 1960 the library received the encouragement and financial support of the National Heart Council for undertaking the project. In early 1961 the library published preliminary specifications for the MEDLARS system and invited proposals from a large number of firms for its study and development. In August 1961 a contract was awarded to the Information Systems Section of the General Electric Co. to carry out the work, and the preliminary design phase of the project was completed at the end of last month.

The results have been highly encouraging, and we are now entering the phase of detailed design.

MEDLARS is a computer-based system to provide a primary centralized screening and sifting of the more than 200,000 medical papers published each year and, in so doing, establish a national resource for controlling the massive flow of new information in the biomedical sciences.

MEDLARS will facilitate the preparation of demand bibliographies on any complex topic in the field of medicine. A researcher seeking to learn at any time what has been published on his subject can query the system and receive a high-speed print-out of all pertinent references. In its first year of operation, MEDLARS will contain 180,000 references; this will increase by annual increments to the point where over a million references will be stored on magnetic tape for searching.

At the same time, MEDLARS will provide an increased high-speed composition capacity for the published Index Medicus. It will also provide recurring bibliographic listings of references selected in accordance with the predetermined requirements of particular research fields. It will, for example, give us the capacity of supplying to the National Heart Institute the current listings of current cardiovascular literature at whatever interval and in whatever reasonable format the Heart Institute may require for such further dissemination and use as the Heart Institute may determine. And it will provide the capacity for doing the same sort of thing in 50 other fields at the same time.

This is an exciting prospect. It is entirely feasible and sound. Its impact on medical information retrieval will be profound. This budget request provides the funds for completing the detailed design, for implementation and testing, and the provision of a fully operational system by the fall of 1963. I am confident that we can bring out the January 1964 issue of the Index Medicus as one of the outputs of the MEDLAR system.

IMPROVEMENT OF MEDICAL COMMUNICATION

Dr. Terry has asked me to respond as well to your request of Dr. Shannon last year for plans for improving medical communication. I should like to make some remarks on this subject, which has been of primary concern to us for a long time. At the same time, I would like to submit for the record a statement representing the National Library of Medicine's contribution to planning for better solutions of this very complex problem.

I have provided a copy of a statement.

Mr. FOGARTY. We shall put that in the record.

(The statement follows:)

THE NATIONAL LIBRARY OF MEDICINE'S ROLE IN IMPROVING MEDICAL COMMUNICATIONS

The National Library of Medicine is known in the United States and throughout the world as the institution preeminently concerned with the acquisition, organization, storage, retrieval, and dissemination of the published medical literature. Its responsibilities in this field are explicit in law, it undertakes national leadership in a frontal attack on the vexing problems associated with the communication of the published results of medical research.

The present statement is an attempt to outline and clarify the problems which exist in the communication of research information among medical research workers, and from medical research workers to health practitioners, and to report on functions and activities of the National Library of Medicine which are related to these problems, as well as to propose the Library's ideas and plans for their solution.

TWO APPROACHES TO THE PROBLEM

Discussion of the problem of medical communication, and of its possible solutions, is sometimes perplexing by virtue of the fact that there are two fundamental approaches which differ widely in their philosophies. The first is concerned with the advancement of professional knowledge and skills limited to a narrow topic of research, disease category, or professional practice interest. In this approach, medical communication is considered in terms of specialized techniques which can be channeled toward particular program interests. Various sectors of the Public Health Service have developed many excellent communication programs of this sort.

The second basic approach is to view medical communication as a complex of systems or social institutions devised by scientific and professional societies to perform broad functions. In this sense, medical communication comprises the sum of all PHS program interests and much more besides. The National Library of Medicine, because of its central position and its service relationships to all categorical interests, takes this latter approach.

Both approaches are valid and are necessary. The latter has some distinct advantages, in that a more basic attack on the structure and mechanisms of medical communication can be made, and in that it offers an opportunity for coordination of the various interests with resulting economies.

THREE LEVELS

It is generally agreed that three levels of communication practices can be distinguished: First, the level of scientist-to-scientist communication, where the purpose is the advancement of man's basic knowledge; second, scientist-to-practitioner communication, where the purpose is the application of selected new knowledge for the improvement of the Nation's health; and third, communication to a lay audience, where the purpose is a responsible sharing of new knowledge to promote the Nation's health through the motivation of an informed public to participate in and benefit by medical advances. There is also general agreement that the critical problems are currently concentrated at the first two levels, and this statement is therefore limited to the research and practice levels.

For understanding of the interrelated functions of communication practices, it is convenient to think in terms of communications systems. Actually, these practices have evolved without plan, over the course of time, and consist of groups of related practices which have common goals, rather than the oversimplified system suggested in the accompanying diagrams.

THE RESEARCH COMMUNICATION SYSTEM

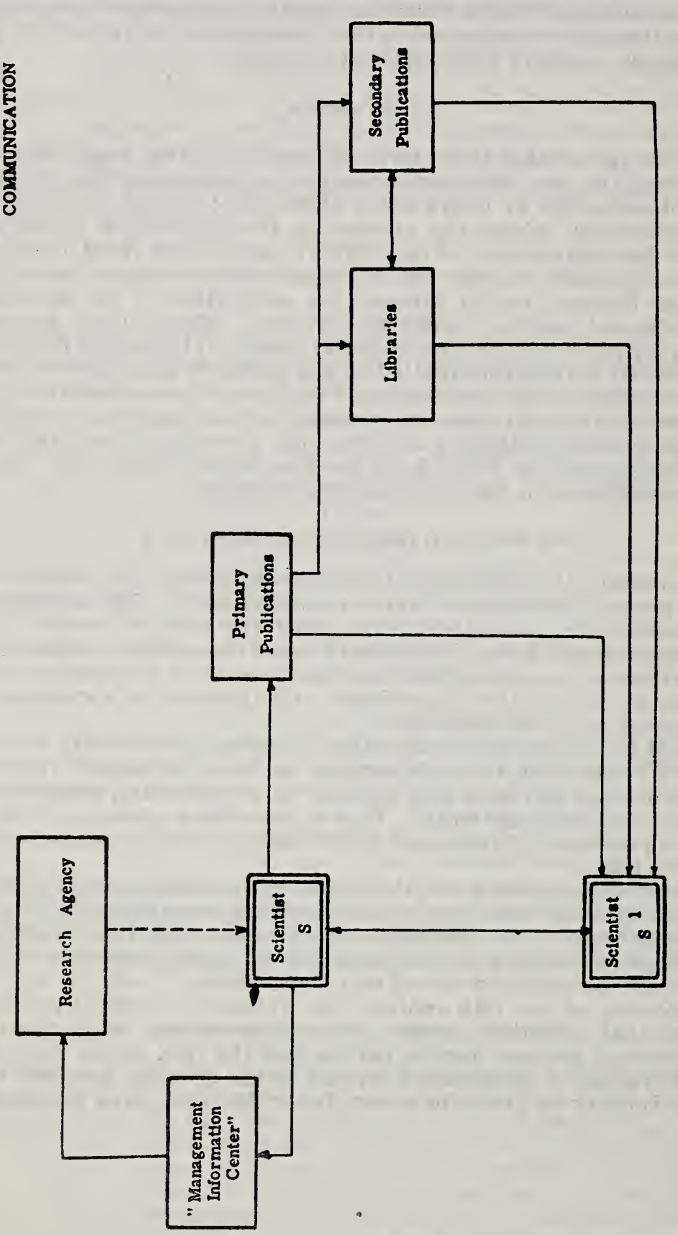
Figure 1 represents in diagramatic form those practices and institutions which serve the purpose of scientist-to-scientist communication. The totality of publications represents what scientists have called the scienific record. This is a pragmatic system, evolved over hundreds of years through the cooperative efforts of research workers, to register their new findings, their verification of the findings of others, as well as their hypotheses and theories, in a cumulative international corpus of scientific knowledge.

Fundamental in this system is the direct personal relationship of scientist S and scientist S^1, who from the 16th century on have exchanged visits and personal correspondence, and have met together in societies and conferences to exchange information on their work. This is the oldest element of the system, and under the pressures of increased traffic today it still provides a most vital communication link.

As the number of scientists grew, the volume of information which they wished to communicate by letter led to the establishment of scientific journals or primary scientific publications. The production of journals and the establishment of medical societies encouraged the development of medical libraries where these publications could be centrally stored and made useful.

By the beginning of the 19th century, the volume of medical publication became so large that scientists devised forms of secondary publication; that is, indexes, abstracting systems, review papers, and the like, whose function it was to codify and organize a systematic approach to the growing scientific literature. The National Library of Medicine's own Index Medicus owes its origin to this need.

FIG. 1
SCIENTIST TO SCIENTIST
COMMUNICATION



By the end of the 19th century, the system was well established, including person-to-person communication, primary publication, libraries, and secondary publication, all enabling scientist S to communicate with scientist S[1], and vice versa.

In our time some new factors, and some greatly swollen old factors, impings upon the system. The bulk of the literature continues to grow at a startling pace. The multiplicity and complexity of scientific vocabularies and nomenclature become bewildering. The vernacular languages in which significant portions of the record are lodged grow from several to several dozen. As the number of research endeavors subdivides and multiplies, a new feature appears in the form of a superstructure to provide information of concern to the planner and administrator of research; as medical research, and the funds invested in it, become increasingly important to the national economy and security, the flow of information to responsible planning officials about that research gains new importance. This new superstructure is not a part of the scientific record, since it serves the purpose of administrators rather than research scientists; the Science Information Exchange, supported by the NIH in cooperation with other Government agencies, is a good example of this type of system for the processing of information about Federal grants in support of biomedical research.

Figure 1 represents schematically the total system of research communication as it exists today. Each element of the system is faced with its own complex of problems, as is the system as a whole. Is the system of primary publication capable of disseminating information promptly and widely enough? How can the effects of the abstracting services be coordinated so that they do not duplicate each other's work while leaving vast amounts of the scientific literature unorganized? Can the unique function of libraries, in providing present information as well as society's past investment in their resources, be better utilized to serve the purposes of expanding medical research? Is the information generated by the science information exchange on "who is doing what" of value to research scientists? And above all, what are the physiological and psychological limits on the absorption abilities of the target scientist S[1], who must cope with more information than he can read in 10 lifetimes?

The medical librarian and bibliographer would also inquire as to what areas in this system are susceptible to experimentation, and what requires basic studies of a sociological or economc nature before their problems are understood more fully, and intelligent moves made to solve them, and as to how the elements of this rapidly evolving system, all subject to scientific and economic pressures and change, can be kept in balance one with another.

RESEARCH TO PRACTICE COMMUNICATION

Figure 2 represents the complex of mechanisms involved in communicating the results of research to health practitioners. It is often assumed that there are direct lines of communication between the researcher's bench and the patient's bedside. This is not the case. The world of research and the scientific record it has devised for the purpose of advancing basic knowledge exist almost as a system apart. There is in fact a mirror image system, which uses comparable communication forms, techniques, and institutions, but for an entirely different purpose: that of selecting units of new knowledge, of correlating them with existing knowledge, of drawing practical inferences, and of applying the information thus gained to the amelioration of human ills. Only a small amount of new research knowledge has immediate application; the bulk of it is stored in the scientific record where it may be associated with findings as yet unmade and converted at some future date into a practical application.

Between the world of medical research and the world of health practice there are many groups of unrelated individuals who perform directly or indirectly this function of analyzing, synthesizing, and applying new knowledge for a vast variety of purposes. Among these are medical educators in medical schools, editors of clinical and professional journals, editors of applied abstracting and indexing services, workers in the pharmaceutical industries, professional program personnel in the Public Health Service and in State health services, and many more. Perhaps even more important, but not separately identifiable, is the host of medical and health practitioners who are research minded and trained in the conduct of clinical research, and clinical researchers themselves who apply the results of the basic findings to the treatment of the human organism.

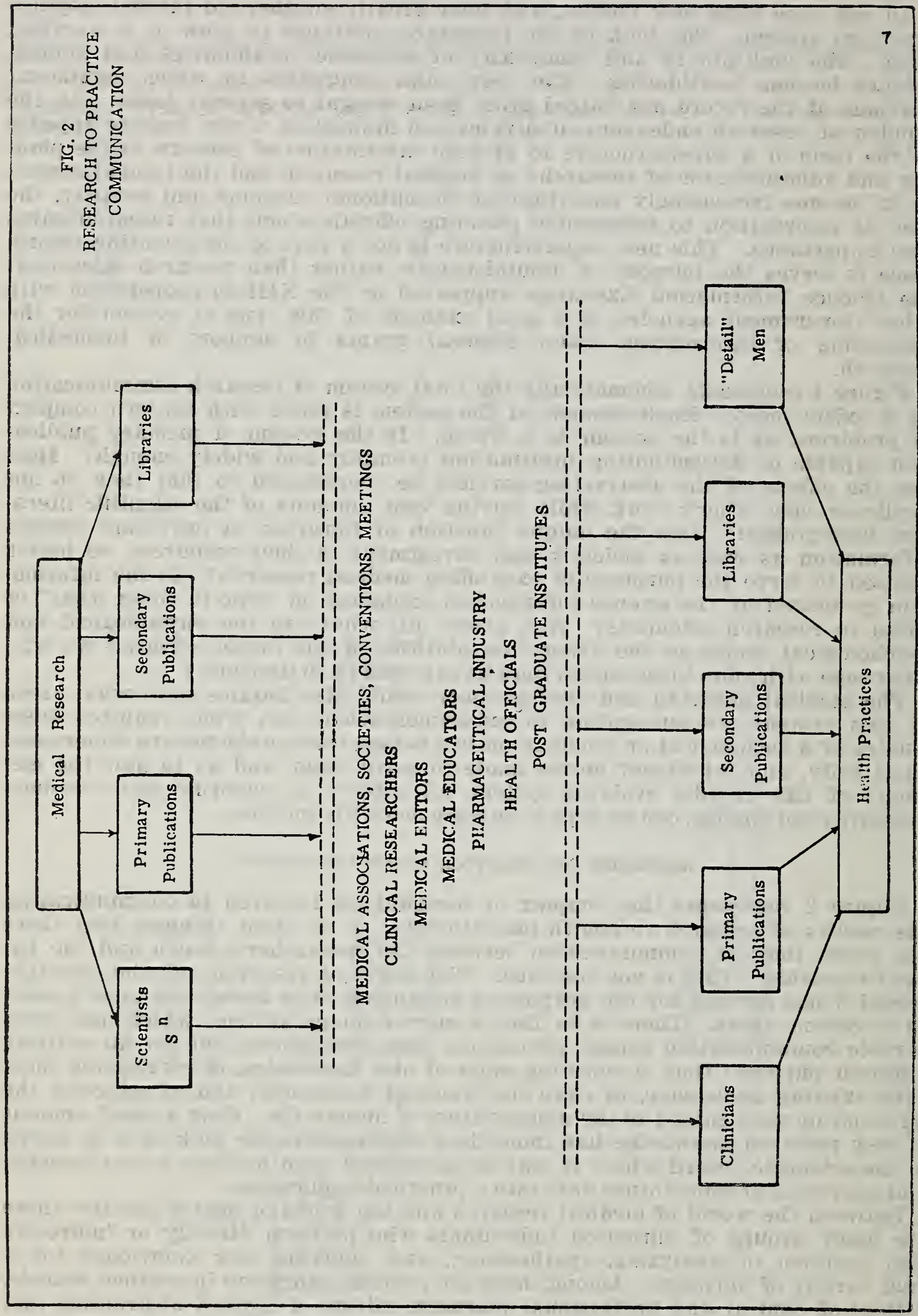


FIG. 2
RESEARCH TO PRACTICE COMMUNICATION

When these individuals discuss applications of research knowledge, they do not use the mechanisms of the scientific record referred to previously, but rather the mechanisms of the mirror image system, clinical, specialty, public health, and professional practice journals, and the like.

This delineation of two systems must be understood as an abstraction. As an abstraction it is justified by the fact that it serves to illuminate the nature of the problems faced. But it is only an abstraction. In the real world there is a gray middle area, wherein medical journals exist which publish communications of both types. Furthermore, the largest and most important research libraries (those of the medical schools, for instance) and the comprehensive indexing and abstracting services perform alternately in both fields, now in one and now in the other, to serve the particular needs of two types of clientele. In devising improvements for medical communication systems, many problems arise from the impossibility and even undesirability of trying to set up an absolute dichotomy between the two systems; all that can be done is to emphasize one system, or the other. Perhaps the saving feature of this dilemma is that one system will always benefit, in some degree, from improvements wrought in the other system.

The system of practice communication is infinitely more complex than that of research communication, since so many specialized interests must be served, so many more communication techniques are available to it, and the total audience of health practitioners to whom the communications are addressed is so large. The totality of information to be communicated goes far beyond the program interests of the Public Health Service.

Figure 2 suggests that there are two axes of attack on this problem. The first is concerned with basic study of the functions of those individuals and groups of individuals who select new basic knowledge and convert it into practical applications. How efficient is their access to research information, past and present? Are there significant areas which are not well enough provided with personnel to perform these functions? What is the relation of these functions to the educational process, and particularly to the development of postgraduate medical education?

The second axis has to do with the improvement of the mechanisms available to these groups. Is the journal system efficient for this purpose, and to what extent is duplication of journal publication essential in order to communicate to the large audiences? How can we achieve a more efficient relationship between the indexing and abstracting services used by basic research personnel and those used to advance information concerning categorical applications? Have we realized the potential of medical television? Should we establish a system of rural medical library extension to expose the physician population of the country to new publication?

In summary, there are separate but closely related systems for scientist-to-scientist communication and for scientist-to-practitioner communication, the latter consisting of a mirror image of the former. Basically the same techniques are involved while the purposes and the forms vary. Each system has its particular problems, and these problems fall into two general categories: technological and sociological. In the first category falls the development and exploitation of new devices and media. In the second fall the far more complex problems of group practices and needs, and their satisfactions. The first has to do with the technology of communication; the second with the sociology of science, a far more complex problem.

RELATIONSHIP OF THE NATIONAL LIBRARY OF MEDICINE TO MEDICAL COMMUNICATION

Since the days of John Shaw Billings the National Library of Medicine has functioned to organize the vast store of medical knowledge, and to make it available both to medical research workers and to health practitioners in all fields of the biomedical sciences. As a consequence of its activities, it is fair to state that the medical sciences have been and are better provided with bibliographic controls over their published information than any other field of scientific endeavor.

All of the library's activities, which have been described to the Congress throughout the years, relate directly to the medical communication problem. The library's collections in a very real sense constitute "the scientific record" of medical communication. The library's Index Medicus is the central organ, as it has been for 80 years, for organizing new published medical information.

Published information

The common theme with which all programs past and future of the library concern themselves is that of published medical information. The library deals with massive amounts of primary publication, and assists scientists in creating more. The functions and activities of secondary publication are closely associated with the library's own function ; Index Medicus is the preeminent secondary publication of the medical sciences. The library's major function is that of organizing, storing, and retrieving information contained in medical publications. All those communication media which employ print are of basic concern to the library's mission.

It follows, then, that there are certain communication technologies which are not germane to the library's mission. Medical radio, medical motion pictures, and medical television, for example, while deriving their program information from print, are communication technologies more properly subordinate to other program and categorical missions. Similarly, those communication activities which occur prior to the fact of primary publication, and not yet in published form, are outside the mission of the library. For example, the library has an interest in medical and scientific meetings only insofar as they generate publications. It has an interest in electronic data processing only insofar as it relates to the electronic storage and retrieval of published information. It has an interest in information centers only insofar as they service the organization, retrieval of published information, and not from the point of view of storage and organization of unpublished experimental, managerial, or fiscal data.

These are the general guidelines adopted by the library in formulating its plans for the improvement of medical communication. These plans may be grouped into two areas: intramural programs and extramural programs.

These two areas are interrelated. In a sense the National Library of Medicine is the Federal Reserve bank for medical information, guaranteeing in its own right the insurance of a stable national system, and acting to supplement, strengthen, and coordinate the functions of related communication subsystems.

In relation to the first objective, the library has made significant progress in the establishment of a computer based indexing system, and is able at this time to discuss the impact of this system and its future developments on the scientific community. In relation to the second objective, the library has a draft legislative program for the establishment of an extramural program designed to support and coordinate related communication functions.

Medlars

In August 1961 the National Library of Medicine began a 2-year research and development contract with the General Electric Co. for the design, development, and installation of an electronic storage and retrieval system known as Medlars (medical literature analysis and retrieval system). The General Electrical Co. has successfully completed the first phase of the system's design, and work will go forward toward the completion of this project. The Medlars system is so boldly a departure from conventional practices, and offers so much promise for the future, that a discussion of its background is appropriate.

The machine retrieval problem.—In "Endless Horizons," published in 1946, Dr. Vannevar Bush, then head of the Office of Scientific Research and Development, proposed as a solution to the problem of scientific access to the mounting volume of scientific publication an electronic retrieval system which he called Memex. Since this date, a number of agencies have attempted to automate the storage and retrieval of scientific information in special fields. There is as yet, however, no fully operational electronic storage and retrieval system of the magnitude of Medlars. The engineering problems involved in information storage and retrieval are considerable, but are not so severe as are the problems of organizing the information for conversion to machine language, and of expressing literature search strategy in machine terms.

In 1959, in the belief that a retrieval system could be subordinated to a mechanized publication system for the Index Medicus, the National Library of Medicine conducted with the joint assistance of the Council on Library Resources and the Public Health Service an index mechanization project. The report which the library submitted to the committee last year has won recognition as a landmark in the literature of mechanized composition of indexes, and the system which was devised as a result of this effort is working very smoothly indeed.

As a result of this study, however, the library reached the conclusion that concentration on index composition problems, and on improvements, however real, in a single major output, resulted in a certain rigidity and inflexibility of product; it determined that a more profitable approach, because more flexible, would be to try to derive the composition function from an overall electronic bibliographic system, rather than the other way around.

The National Advisory Heart Council had expressed great interest in the subject of information retrieval in its field, and through the National Heart Institute funds were made available to the library to take the first steps in the development of the new system. Specifications for Medlars were prepared a year ago. Responses were solicited from 72 electronic systems design firms and manufacturers, most of whom attended a public briefing. Twenty-five detailed proposals were received by the due date, were carefully reviewed with the assistance of a committee of expert advisors, and in August 1961 a contract was awarded to the General Electric Co.

Description of Medlars.—At the heart of Medlars will be a digital computer. Information will be fed into the system through punched paper tape, which represents the indexing done by the library staff. This information will be converted to magnetic tape and manipulated in the computer. The magnetic tape so processed will be used to activate a very high-speed composing device which will be capable of producing photographic masters for printing.

The total volume of information processed by the library, and the complexity of its organization, will be increased materially. The library now indexes 140,000 papers annually; Medlars will accommodate 250,000, and a large volume of the nonjournal published information which the library does not currently index. The average number of subject headings assigned will be increased, thereby permitting indexing at a greater depth than the library now accomplishes. In addition, Medlars will have controls enabling the library to sort by language, by date, by title of publication, and in other ways, as well as by subject fields.

Medlars products.—The library has specified the following categories of products to be derived from Medlars: first, an increased high-speed composition capacity for the published Index Medicus; second, recurring bibliographic listings of references selected in accordance with the predetermined requirements of particular research fields. The library, for example, would reach an agreement with representatives in a field of cardiovascular or cancer research on the subject heading structure which covers the literature for the particular field, and would supply a weekly listing of the world's medical literature in that field to the research group for its dissemination. Third, an independent search and retrieval capacity to answer on demand queries from individual research installations concerning new publications bearing on their immediate problems. In its first year of operation, Medlars will contain 180,000 references; this will increase by annual increments up to the point where over a million references will be stored on magnetic tape for searching. For references older than 5 years, the published Index Medicus must still be searched.

Progress on Medlars.—The first phase of Medlars has now been successfully completed, and the library has great confidence in the ultimate success of the project. The system is feasible, and its cost aspects, while high, are still reasonable. Only one technical aspect of the Medlars system requires further development, that of a high-speed magnetic-tape-driven composing device, but the state of development is such that this should be accomplished soon. Medlars should be operational by the end of 1963.

Significance of Medlars.—On successful completion of this project, the medical sciences in the United States will have access to a powerful tool equaled by none in the world. The impact of the Medlars system on future developments in electronic storage and retrieval in particular, and on the structure of medical communication in general, is expected to be considerable. Medlars will answer longfelt needs for current awareness services to keep scientists posted on the latest developments in their fields. Medlars will also provide a base for the centralized preliminary processing of information now conducted under circumstances of duplication and economic waste by multiple independent secondary publications. Further, Medlars will constitute a new key to medical libraries generally, and when coupled with photoduplication services, will enable libraries to meet modern research requirements for information with unprecedented effectiveness. As a byproduct of Medlars, the art of electronic typography, a field which is in its infancy, will be materially advanced, as the library has already described to the Joint Committee on Printing.

The future of electronic storage and retrieval.—To date, the library has been reluctant to predict the shape of things to come; it has wished to have solid accomplishment behind it before it made known its new capabilities and its ideas of their consequences. It did include, however, in its contract with the General Electric Co., specifications that the Medlars system be designed so that it might be compatible with secondary and long-range objectives to be constructed on the Medlars base in the future. With the first phase of the Medlars contract successfully completed, it may be appropriate to discuss briefly the library's concept of some of these secondary objectives.

1. National network of search and retrieval centers: The library has long believed it desirable to centralize certain aspects of bibliographic control of the medical literature and to decentralize others. By distributing nationally and internationally its printed indexes for 80 years, it has made possible in thousands of institutions the decentralized local search of a centralized storehouse of knowledge.

Similarly, by decentralizing an electronic search potential, it would provide American medicine with a powerful device for searching, with unprecedented speed and effectiveness, the burgeoning literature of the medical sciences.

It is possible to project the establishment of regional medical library centers, each of which would be provided with a special Medlars search device. Economic considerations initially might limit these to a dozen institutions. The library would undertake to supply these centers with magnetic tape duplicated at intervals, thereby giving them the same search capability as it will itself possess. This would multiply by 12 the national electronic search capability, permitting thousands of research-related queries and responses daily.

The above application contemplates decentralized storage and search of magnetic tapes representing the totality of NLM indexing. Instead of printing out a listing to service the needs of specialized research groups, the library could equally well supply shipments of magnetic tape representing by predetermined pattern all the references of concern to that field. Thus a specialized information center on diabetes, aging, perinatal research, or primatology could be supplied with a specialized tape library which it could search at will.

The possibility of tape duplication and decentralized search at multiple centers adds an entirely new dimension to the accessibility of medical literature to research scientists.

2. Text storage and retrieval: Memex contemplated the storage of text images on reels of microfilm. The art of storage of microimages of text is far advanced. New developments suggest that it may be economically as well as technically feasible in the future to store printed information so that copies of text may be provided in direct association with the references searched, probably through a separate, second-stage device linked to the search system.

There are still technical developments to be made in this field, and economic considerations suggest that such a system will not be attainable in the immediate future. The field is under development; Medlars has been planned with this ultimate possibility in mind, and the library will monitor the developments closely.

3. Remote input and output: A third forward-looking requirement included in the library's specifications is that of adaptability to future remote input and output situations. The components for such further development exist today is partially developed form. There are still technical problems to be overcome, and above all economic ones.

One general comment should be made concerning the further development of this field: possibility does not equate with desirability. Simply because a technology exists is not an adequate reason for its immediate application. The library believes in first things first, and its efforts will be concentrated on the successful completion of the Medlars project, without which the secondary objectives are visionary.

New legislative program

The Medlars program is the Library's intramural contribution to the solution of those communication problems which relate to the storage and retrieval of published medical information. It will provide the library, and by extension other libraries, with a greatly increased potential for servicing needs in the fields of both medical research and health practices. A proposed new legislative program is the library's contribution to the research and practice communication systems generally, through extramural support for the strengthening of the national network of communication of biomedical information in its printed forms.

Background.—The Committee of Consultants on Medical Research to the Senate Appropriations Subcommittee recommended the establishment of support programs for the modernization and supplementation of medical libraries, and for the support of communications research. The Study Group on Missions and Organization of the Public Health Service, in making its final report, subsequently recommended that the library assume leadership in developing a program to support research and development in new information-handling concepts, in providing for experimentation in fields of information storage and retrieval, indexing, classification, dissemination of medical literature, preparation of literature reviews, translations, and training in medical library science and related fields. This program, in accordance with the study group's recommendation, should be pursued directly and through extramural grants.

The library responded to this proposal in the fall of 1960 by establishing the Office of the Deputy Director for Extramural Programs, and by the drafting of a comprehensive program for the support of communication activities in the following fields:

1. Scientific publication, with particular reference to secondary publication;
2. Medical libraries, with particular reference to facilities, resources, and manpower;
3. Communication research and development.

This proposed program was reviewed and approved by the Library's board of regents, and by appropriate program officers within the Public Health Service. On July 1, 1961, the Library acquired its first operational responsibilities by transfer of the Russian scientific translation program from the National Institutes of Health. This translation activity has been merged with the foreign-currency translation program which the Library has operated in conjunction with the National Science Foundation and constitutes a unit of the proposed publication program. On August 14, 1961, the extramural program was officially established within the Library's organizational structure.

Legislative requirements.—A review reveals that existing legislation is not adequate to authorize the Surgeon General to carry out some of the functions required by this program. Some added authority would have to be provided in legislation to enable the Library to conduct research and studies in fields of dissemination, organization, storage, and retrieval of information, and to make research project grants for these purposes, to establish a program of training grants and fellowships, and to pay part of the costs of projects designed to strengthen existing communications systems.

Relation to other programs.—This program would provide comprehensive support for those elements of the research and practice communication systems which require strengthening, and would at the same time support study into the basis of new and nonconventional mechanisms which might supplant elements of the two systems in the future. It differs fundamentally from the approach of other programs of the Public Health Service in that it is not program oriented but systems oriented. It is distinguished from the concerns of the research units of the Service in that it is primarily concerned with those functions which follow publication rather than precede it, and with the processing and use of information rather than its generation. It is distinguished from the categorically oriented program activities of other agencies of the Service in that it is concerned with the system of research-to-practitioner communication as a whole rather than with the advancement of any one program. The crux of today's problem is the breakdown of communication systems under the volume of traffic they are required to bear, rather than the ability of any categorical interest to utilize any part of the system for the advancement of its program objectives.

Program areas.—Scientific publication: The first of the Library's proposed programs has to do with the strengthening of the scientific publication system employed for disseminating information in the biomedical sciences. The problems here are two general types: logistic and economic. Provision of page-cost support, as recommended by the Federal Council on Science and Technology, and permitted under NIH grants, will blunt the edge of the economic problem for primary journals. On the other hand, there is room for experimentation in new devices for promptly reporting research findings.

Secondary publication, on the other hand, is beset by many ills. First is the increasing volume of primary publication which must be accommodated, over which the secondary publications have no control. Second is the problem of duplication and gaps. It has been said that 25 percent of all scientific papers are abstracted on the average of three times, while 75 percent remain untouched. Third is the problem of coordinating the classic discipline-oriented abstracting services with the new interdisciplinary or categorical interests.

The need for critical reviews of progress on scientific topics is reiterated wherever scientists meet. Similarly, with a miniscule percentage of American scientists able to read foreign languages, there is need to organize translation efforts of significant works from many languages, not Russian alone.

The Library's proposed publication support program would meet these needs as follows:

1. It would support experimentation in new forms of scientific journal publication, hoping to establish techniques whereby scientists could report their findings more promptly and effectively.

2. It would support the needs in secondary publication (abstracts, indexes, bibliographies, review papers, etc.), with particular reference to their planned coordination. Cooperation is badly needed in this field, and the Library would bend its efforts to this end. Of particular significance would be the interrelationship between the Library's intramural Medlars program and needs in the secondary publication field. Much wasteful duplication exists today in independent total scanning of the world literature in order to sift out that small portion aimed at a particular categorical field. Medlars would offer a common base for the building of many superstructures, with resultant saving in scientific manpower and dollars.

3. The Library would continue its present translation programs, expanding them to cover important scientific contributions published in the various foreign languages. The present limitation to Russian language publication, from the point of view of medical research, is artificial. Japanese biomedical research publication is surely as significant to research workers. The determinants should be the significance of the information to American research, and the percentage of scientists who can read it in the original, not its national origin. Of particular interest is the Library's program of stimulating publication of the original material in English in the country of origin, a form of preventive translation.

4. The Library has designed a program of fellowships to support the writing by senior scientists of critical reviews and comparable undertakings based in part on the unique collections of the Library itself. This would facilitate the exploitation of the Library's resources, and result in much needed consolidations of new research knowledge.

This publications support program would be operated in full coordination with the intramural and extramural programs of the National Institutes of Health and the other Bureaus of the Public Health Service. Machinery would be established to take full advantage of the research community appraisal of scientific needs and to act to satisfy them. It is planned, for example, to give applications a dual review: First, from the point of view of the needs of the field of research or program interest, and second, from the point of view of technical system considerations. The study sections at the National Institutes of Health would provide the former, a new study section established by NLM the latter. The office established for this program would be a point for technical consultation and advice on problems of scientific publication for the entire Public Health Service, and would take the initiative in advising on and coordinating the many diverse publication-support efforts.

5. The Medical Library as a conventional device for storing and servicing medical information has come on difficult days. Generally speaking, Library support from all private and State sources has shown a relative decline throughout the 20th century. Libraries today receive 3.8 cents of the university dollar in contrast to 4.3 cents 25 years ago. The volume of publication they are expected to accommodate and service has increased enormously; libraries are the first victims of the publication explosion. The number and characted of users they are called on to serve has increased and changed markedly under the impact of vastly expanded medical research programs.

There are three aspects of National Medical Library needs: facilities, resources, and personnel.

(*a*) Facilities: Hearings on H.R. 4999, conducted by the House Committee on Interstate and Foreign Commerce, brought out the needs for medical library facilities considered in two contexts: First, the library as a research facility, and library facilities support as a function of the research facilities construction program of the National Institutes of Health; second, libraries as an educational facility, and their construction under a new authority to be provided by the Medical Education Assistance Act of 1961. In addition to these considerations, as a function of the Hill-Burton Act, the Public Health Service has included small medical libraries in the hospital and medical center facilities built to date.

The National Library of Medicine is concerned for the adequate housing of the country's medical libraries in schools, research institutes, and hospitals. It is also concerned with the development of regional medical library centers, particularly in reference to the long-range aspects of the MEDLARS program. While the funding and the operational authority exist elsewhere in the Service, the Library has offered its assistance in two particulars:

Serving as a center to collect information on library construction needs and to interpret these findings to separate programs in the Public Health Service; and

Providing advisory and consultation services to assist the operating programs and their advisory councils in arriving at judgments related to the facilities grant applications.

(*b*) Resources: It is frequently represented that the tremendous increase in grant activities in the country's medical schools have placed inordinate demands on the libraries of the schools. The book collections are in need of expansion, both to provide the literature of fields of research new to the institution, and to support in depth the needs of local researchers. The personnel called on to handle this added traffic are not sufficient in number.

The exact extent and the character of these needs, however, have yet to be precisely demonstrated. The National Library of Medicine proposes to undertake, in cooperation with appropriate professional bodies, comprehensive studies incorporating data on the national need for the improvement of medical library resources. These studies will take into consideration the possible future relationships of regional medical library centers and of mechanized systems such as might be developed under the long-term objectives of MEDLARS.

(*c*) Personnel: There exists a serious manpower shortage of medical librarians and trained medical documentalists. There are accumulated manpower deficits which have resulted in seriously lowering the standards of library services. The annual increment of new graduate librarians does not keep up with the increase of national needs. At the same time, medical research is placing more demands on individuals who service its information requirements.

The Library would establish a broad training program, designed to increase the production of trained manpower, and to improve the skills of those already on the job. To this end it proposes a system of scholarship grants made to training schools, and of short-term and long-term refresher courses at summer institutes.

Research and development: There are two approaches to the field of medical communication: sociological and technological. The systems which society has built up were established by groups of scientists to regulate their own business. They were established to meet a requirement of the scientific social order, and hence may be considered in the area of the sociology of science. On the other hand, the techniques available for the scientists' use are susceptible to a different type of analysis.

It follows that any program of basic inquiry and study into the improvement of communication systems should have two dimensions: research into the sociology of scientific communication, and development of the technologies guided by the new knowledge gained by such research. The proposed National Library of Medicine extramural program would support theoretical studies of the functions of the communication systems as a whole and in its several parts. These studies will take such forms as operations research into the requirements for information, and the pathways through which it flows, basic inquiry into the organization and classification of medical scientific knowledge, and econometric studies of parts of the system, such as the patterns of medical abstracting services and collections of medical libraries. In supporting such studies, the balances and functions of the two systems as represented by figures 1 and 2 will be kept in mind at all times.

The objective of a development program would be to design mechanisms related to the components of these two systems which, by simulation of human activity, could perform the human functions faster, better, and more economically. This requires a fairly detailed understanding of what these human functions are. Hence the development aspect of the program is related to the research aspects, and comprises a balanced attack toward the objective of improving our present systems.

Examples of research and development support can be better understood by relating them to the subsystems outlined in figures 1 and 2. For example:

(*a*) Primary publication: A broad theoretical study of the effectiveness of disseminating research information in the forms of separates (i.e., Bernalism) is needed. This has been much talked of as a more economical device than journal publication, but it has never been tested.

Studies and demonstrations are needed on the journal dissemination mechanism as a whole in relation to the speed of communication. Do we need research newspapers, more brief communication journals, and the like? How can the effectiveness of referee systems in eliminating the repetitious and inconsequential paper be strengthened?

(*b*) Secondary publication: The economic relationships of secondary publication require thorough investigation. The library would support fundamental studies in the organization and economic aspects of secondary publication, in the interest of improving the efficiency and reducing the cost of the system as a whole. In this context, the relationship of categorical-oriented systems to discipline-oriented ones is especially significant.

The developmental aspects of abstracting-indexing systems provide a fruitful field for the application of new technologies. Computer-assembled permuted title indexes are already in development in the fields of chemistry and biology, as is the machine abstracting of scientific text based on world frequencies. Projects to be supported by the Library in this area would inevitably bear a relationship to the development of the MEDLARS system. In addition, development projects would be related closely to results attained under the basic investigations supported by this program. The truism that engineering has ready answers, for all that needs to be done, once what needs to be done is known, is nowhere more true than here.

(*c*) Medical libraries: The basic functions of the medical library as a center for information storage and retrieval need to be restudied in relation to a possible national system of regional resource centers. This calls for a series of operations research studies related to the logistics of acquiring, storing and retrieving information. In a more conventional area, the traditional practices of medical libraries need thorough review. What should their standard of performance be in relation to contemporary research needs? Can the bases of their cooperation by interlibrary lending be improved?

On the developmental side, this field has many possibilities. The intercomcunication of libraries in regional patterns through remote facsimile systems is possible in the immediate future. The establishment of a machine search potential in regional libraries, as suggested under the MEDLARS program, is desirable. There are opportunities for mechanization of internal library functions which would free scarce manpower for the performance of more intellectual tasks.

Though the common objective of all aspects of a communication research and development program would be to improve the efficiency of systems designed for communication of published information, developments in this field would also be applicable to other areas which are concerned with unpublished data. For example, fundamental studies in the classification of scientific medical knowledge, and in its reduction to machine language, would have prime benefits for any system established to process unpublished information concerning research grants, and the development of these two fields would proceed along parallel lines and in close cooperation.

The problem of the literature of medicine is highly complex; it is logically tackled through a comprehensive systems approach. The problem of handling published information does not exhaust all the problem areas of medical communication, but constitutes a large and significant segment of those areas. The National Library of Medicine has the collections base, the indexing experience, and the other capabilities required for making a substantial contribution to the solution of the problem.

BUREAU OF STATE SERVICES REPORT ON THE COMMUNICATION OF HEALTH KNOWLEDGE

Mr. Fogarty. Since it is on the same general subject, we will place this report from the Bureau of State Services in the record at this point.

(The report follows:)

January 1962.

The Communication of Health Knowledge

The report of the Chief of the Bureau of State Services in response to comments in the report of the House Appropriations Committee, 1961

The transmission of useful information about new research findings to the medical profession and health workers is accepted as one of the operating responsibilities of the divisions of the Bureau of State Services.

It is considered to be an operating responsibility because the communication of current, selected, and often interpreted information is one of the primary means we have of improving health by cutting down the timelag between research finding and clinical use on the patient.

In fact, the aggressive use of communication with the private and public health physicians and other health workers has been an important method by which the Service exercised its national leadership in programs against the communicable diseases during this century.

In the successful attacks on the major communicable diseases the Service learned a great deal about ways of communicating with physicians, and this experience is now being put to use as we move into new activities on the whole broad front of efforts in the control of the chronic diseases. Specifics in both of these new and older areas will be dealt with later in this report. First, however, two basic considerations should be emphasized.

The first point is that programs of the Bureau fully understand the relationship of communication to control programs in this equation: the successful use fo new research knowledge in disease control efforts is directly related to the speed with which the private physician gets new knowledge and puts it to use; and the understanding and use of knowledge by the practitioner depends in large measure on whether or not he gets the information in usable form; and the control programs of the Service have a strong responsibility for taking the lead in many fields in getting such information to the private practitioner.

The second basic consideration in this picture is that through the years our experience has shown that many methods of communication must be used and that efforts must be carefully chosen and implemented. There is a wide variety of audiences in the medical profession itself as well as the many health workers and voluntary groups that assist in fighting disease, both as to size of membership and as to understanding and interest in individual health problems.

In this respect, one lesson the Bureau has learned is that the broadside approach of sending all physicians everything in print is not the most effective. More than 60,000 professional articles appear in the medical and technical journals of the Nation every year; much of this material is of little value to the busy practicing private or public health physician. Therefore the control programs of the Bureau find it necessary to do a constant job of selecting and interpreting for its varied audiences that material which will help to accomplish the objectives of the program and be usable by the physicians and others who receive it. Although there may be essential value to all of the medical writing that emerges, practical considerations have shown us that the mass of material is of more value to the researcher and the teacher rather than the public health controller and the practicing physician.

The consistent and underlying philosophy of the Bureau to seek the wider application of knowledge through communication runs so deeply through our control programs that it is difficult to say where it begins and where it ends. It runs the entire spectrum of operations in the Bureau. For example, the regional offices of the Service, staffed by specialists in almost all of our program areas, were set up expressly for the purpose of closer communication with the States to improve their use of our knowledge and consequently their own health services.

Similarly, an underlying purpose of most grants, no matter what category they fall in, is demonstration of the effectiveness of a health measure—with the realization that successful demonstration is in itself a form of communication and will also furnish an example for even wider communication. Moreover, some of our grants are directed specifically at the purpose of developing better methods for communicating research knowledge.

In the pursuance of our program objectives, these foregoing activities are just as important in the total structure of communication as those methods that normally come to mind. In this latter area the Bureau's activities cover a range from technical articles and publications by the hundreds, special seminars for varied medical and health groups large and small, training courses ranging from 2 days to many weeks and covering techniques in many specific fields, professional films, national conferences, to many other methods.

Perhaps examples from the older and newer programs of the Bureau illustrate best our approach to the uses of communication in achieving program objectives

In the early days of our fight against the venereal diseases the Service set out on a conscious effort to communicate the knowledge then in existence about case finding, diagnosis, and treatment. This knowledge went to physicians in various ways, ranging from a regular journal and special reprints to laboratory manuals and a desk textbook for physicians to assist in diagnosis. The physicians of the Nation soon realized that the Service was exercising the leadership role in the venereal disease problem. Through the years, as the Service researched and developed modern methods of treatment and expanded into the training of State and local health workers, regular communication helped to solidify our role of national leadership in this field.

In the newer area of chronic diseases, perhaps one example will illustrate. In the budget presentation to the Congress this year there is a request for funds to increase the number of demonstration projects to implement the procedures outlined in the Service's publication, "Strike Back at Arthritis," and begin evaluation studies of its utilization by various medical specialties.

The success of this publication follows the widespread acceptance by the medical profession during the past 5 years of its sister publication, "Strike Back at Stroke." Both of these documents were researched and written in response to specific need expressed by physicians for instructions to give nurses and families of stroke and arthritis victims. More than 350,000 copies of "Strike back at Stroke" have been distributed, and there is little doubt that it has become a standard adjunct to the physicians' prescription for these patients.

These are two general program approaches to the objective of communication. In addition, however, examples of the varied methods of communication are also indicative of the constant preoccupation of the Bureau's programs with the value of this principle. Following are some of these methods.

SPECIFIC EXAMPLES

1. Technical publications

Literally thousands of technical publications are stocked and distributed as standard procedure by BSS programs. The Hospital Construction Division alone regularly stocks more than 200 such publications, ranging from manuals of 200 pages to short reprints dealing with specific technical points. More than 400 publications have been printed and distributed by this program since the passage of the Hill-Burton Act. All of the various divisions of the Bureau published and distributed more than 200 important technical publications last year.

2. Seminars and major meetings

Meetings constitute a major method of communication with the professional world and are used in many ways.

One example of the use of this method was the ad hoc emergency meeting on the problem of staphylococcal infections in hospitals. More than 150 experts representing 100 national organizations attended this 3-day meeting to present their views on the problem. Following the meeting, BSS printed and distributed three different major publications, including 10,000 copies of the complete proceedings. With these publications in hand a series of regional meetings was also held to further communicate with State and local personnel on the problem.

Another kind of seminar is that used in the venereal disease program. Three large meetings are held each year in different parts of the country so that the 1,000 or more venereal disease workers in all of the States can get the benefit of a 3-day intensive interchange of current information on case finding, laboratory procedures, and treatment.

Another example of the use of meetings is the annual gathering of the Advisory Committee on Influenza. This group meets in the spring to set the policy for the influenza program of the Service for the following year. After the meeting many copies of the proceedings are distributed to special groups and this year more than 40,000 copies of a fact sheet on the findings and recommendations of the committee were distributed to physicians and health department personnel.

Seminars and expert meetings of this kind have dealt with and produced major professional publications in the areas of nursing home operating standards, diabetes control, rabies, encephalitis, the use of driving simulators, uniform medical care standards, air pollution research, and many others.

3. Films

Last year our audiovisual section distributed and arranged some 30,000 showings of motion pictures to health organizations throughout the United States. About 750 different public health films are housed at CDC, some limited to technical use, others of more widespread interest. Over 4,500 movie prints and 168 filmstrips are in constant circulation.

4. Demonstrations

Through direct operations and through the award of project grants to States and community agencies, the Bureau is constantly involved in the transfer of knowledge through the demonstration of new methods of application. In some instances this process involves the assignment of personnel and the loan of technical supplies and equipment to demonstrate a new technique for the promotion of health or the prevention of disease. In others, awards are made by grants or contract for the demonstration of such techniques. The CDC vector control program is an illustration of the direct method of operation for demonstrating known methods of communicable disease control through the assignment of personnel, materials and equipment and for training local personnel in control techniques.

The passage of the Community Health Services and Facilities Act in 1961 has greatly expanded the means by which the Service can communicate with local communities through the stimulation of studies, experiments, and demonstrations seeking the application of improved methods for the provision of health services. Through special project grants, health practitioners will become informed of the need for out-of-hospital services and of feasible methods for their organization and development.

5. Professional periodicals and newsletters

Probably the outstanding example of this method is the weekly Morbidity and Mortality Report which has been airmailed each week for many years to more than 3,000 people including State and local health officers and the press. This contains data from all States on the incidence, mortality, and morbidity of all reportable diseases and is widely known for the service it provides.

Specialized newsletters, informal and inexpensive, are distributed by the Bureau to audiences that usually include over several hundred specialists in a variety of fields such as veterinarians, members of the epidemic intelligence network, vector control specialists, those engaged in water pollution research, occupational health specialists, physicians, and others engaged in heart disease control research, and other fields.

6. Special methods

The cancer control program of the Service has conceived a unique means of communicating directly with physicians by a device called "Shop Talks." It consists of the putting of a 1-hour discussion between practicing physicians and cancer specialists on film, which is then shown to meetings of local medical societies and similar groups to serve as a stimulus for further discussion by these groups. In Alabama, for example, such a "Shop Talk" filmed 5 physicians and 5 specialists and was subsequently shown before 45 meetings to more than 700 physicians. There are definite indications that this film, which dealth with the Papanicolou smear has had the effect of increasing the use of this test in Alabama. One pathologist reported that the number of Papanicolou smears he has received has doubled.

Another unique program of communication is that which maintains a flow of new data on new chemicals and poisons to a network of poison control centers serving physicians in local communities. The supply of poison control data from the Public Health Service plus financial encouragement has helped the growth of this idea, less than 10 years old, to achieve the present operation today of more than 470 of these centers.

7. National conferences

Our newer problems lend themselves with great effectiveness to the use of this concept. The National Conferences on Air Pollution and Water Pollution each brought together more than 1,000 experts and leaders and served not only to help focus on the specific needs for attacking the problem and to increase public interest in the problem, but also to provide a real opportunity for using the speeches and data that came before the meeting to communicate with members of the scientific community who were unable to attend.

LEVELS OF MEDICAL COMMUNICATION

Dr. ROGERS. This additional prepared statement is not a statement of what we have accomplished. Rather it is a statement which I hope will be helpful to the committee in defining the problem and in charting the courses toward solution.

Medical communication has many meanings to many people. We may distinguish among communications among research scientists, for the purpose of advancing basic knowledge; communication of the results of research to the practitioner, for the purpose of improving the health of the American people; and communication to the audience of laymen to insure their understanding and their benefiting by medical advances. This is a basic distinction among the levels of the problem.

At the first level, that of research communication, we are dealing with self-contained system, the scientific record, which existed before the PHS came into being, which exists now independent of the Service, to which the PHS scientists as well as scientists all over the world contribute the end products of their research, their publications, and from which they draw for continuing their work.

In a sense it is like a bank of scientific knowledge. This scientific record is alleged to be in bad shape today, not because there has been a run on the bank, but because so many deposits have been made that its antiquated bookkeeping system has been swamped and we cannot get at our assets to put the capital to work as efficiently as we would like.

The second level, that to which the committee specifically addressed its questions, more nearly represents a complex of development funds than it does a general banking operation. In the communication of medical information to improve the levels of health practices, there are many interests involved and the Service has many established programs for the communication of new findings applicable to specific health fields to professional workers throughout the country. This is a continuing responsibility of the Service and many units have such communication as a feature of their fundamental mission.

The third level, that of public information, is not under discussion but I might point out that it, too, draws on the general capital of new research information in order to interpret its social importance to the general public.

Common to these three levels there is the function of accumulating, storing, and putting to use new published scientific information. The bank which performs this function is the research library and the national banking system which makes this capital available is the country's medical library network. The National Library of Medicine is, to end this analogy, the Federal Reserve bank for medical research information.

COLLECTION OF MEDICAL LITERATURE

You have heard a good deal about the crisis in scientific communication. I shall not take your time with stories about the exponential growth rate of the literature. The problem is massive and it is critical. No one knows this better than we who have lived with it for so long. I prefer to look to the future, and I have two points in which I think the committee will be interested.

The first point concerns the major intramural effort we have mounted, the Medlars program. We now receive more medical publications than any other institution in the world. Since 1880, at least, this literature of medicine, thanks in no small part to our programs, has been controlled better than that of any other broad scientific field. The Medlars project is in keeping with this tradition. It will supply the medical sciences with a larger and more sophisticated system of machine storage and retrieval of information than is available in any field of science anywhere in the world.

We approach the future with prudence, based on long experience, and have been reluctant so far to indulge in the popular game of predicting the shape of things to come. As Dr. Mortimer Taube points out in his book "Computers and Common Sense," computer technology is full of descriptions of detailed systems which do not, in fact, exist. Furthermore, we have wanted to have some solid accomplishment behind us, to enable us to talk with assurance about these things which are feasible, as well as desirable.

We have just completed the first major step in our systems design, and have thoroughly studied the capabilities of Medlars. While there are still some technical problems to be surmounted, we are now in a much sounder position to talk about the secondary, or long-range objectives, which we have had in mind from the beginning.

REGIONAL SEARCH CENTERS

Once Medlars becomes an operational reality, we see potential development in fields such as regional search centers and in problems concerned with text storage and retrieval. As to regional search centers, it will be possible to construct special search devices using the Medlars configuration and to install these in regional medical library centers. Each center would be supplied with duplicates of the magnetic tape supplied centrally by the National Library of Medicine. A centralized search service can only begin to meet national needs; by decentralizing search in a satellite system, thousands of research and retrieval operations could be conducted daily.

TEXT STORAGE AND RETRIEVAL

As to text storage and retrieval, it has long been a dream of science-fiction writers to store the contents of a library as micro-images instead of in printed volumes. Industry has made giant advances in this field, as witness the storage of taped television programs, but economic considerations still loom large in the storage of graphic printed information even of the magnitude of 1 year's intake at the National Library of Medicine. There are interesting development possibilities over the horizon, and when the storage and transmission of images of the printed page becomes more economically feasible, the National Library of Medicine will have in its Medlars program the key which will unlock the electronic library.

COMMUNICATION IN BIOMEDICAL SCIENCES

The second point concerns our proposed extramural program for the support of communication in the biomedical sciences. A word of background is essential. The Committee of Consultants on Medical Research to the Senate Appropriations Subcommittee recommended two programs, one having to do with the modernization and supplementation of medical libraries, the other having to do with the support of medical communications research. The task force on the organization and missions of the Public Health Service subsequently recommended that the library assume leadership in developing a program in research and development in new information-handling concepts, in providing for experimentation in fields of storage and retrieval, indexing, classification, dissemination of medical literature, preparation of literature reviews, translations, and training in medical library sciences and related fields through fellowships and training grants.

The library responded to this proposal by drafting an extramural program which would support communication activities in the fields of publication, medical library facilities and resources, and communication research and development. These proposed functions were reviewed and approved by the library's Board of Regents, and by appropriate offices within the Public Health Service.

SCIENTIFIC TRANSLATION PROGRAM

On July 1, 1961, the library acquired its first operational responsibilities in the extramural area by transfer of the scientific translation program from the National Institutes of Health. This translation activity has been merged with the foreign currency translation program which the library has operated in conjunction with the National Science Foundation, and the combined activity constitutes a part of the proposed publication program. This program has supported the cover-to-cover translation of Russian medical journals, and the preparation and publication of abstracts and review papers. As the result of an extensive program evaluation just completed, the program will probably undergo some modification, stressing the coverage of literature by abstracts and critical reviews.

While full attention will be paid to Russian contributions, the program will support translation from other languages in which the quality of research is high.

NEED FOR INCREASED LEGISLATIVE AUTHORITY

In the second prepared statement which I submitted to you I have described extensively the other areas of the proposed extramural program. A review indicates that existing legislation is not adequate to authorize the Surgeon General to carry out all of the functions proposed. Some added authority would have to be provided in legislation to permit the library to conduct research and studies in fields of dissemination, organization, storage, and retrieval of information, and to make research project grants for these purposes, to establish a program of training grants and fellowships, and to pay part of the costs of projects designed to strengthen existing communications systems.

The problem of the literature of medicine is highly complex. The problem of handling published information does not exhaust all the problem areas of medical communication, but constitutes a large and significant segment of those areas. The National Library of Medicine has the collections base and the indexing experience, the ongoing extramural MEDLARS program, and a good plan for an extramural support program, and the other capabilities suitable for making a substantial contribution to solutions to the problem.

Mr. FOGARTY. Thank you, Doctor.

Mr. DENTON. I have no questions.

Mr. FOGARTY. Mr. Marshall?

EXPENDITURES FOR EQUIPMENT

Mr. MARSHALL. In your justifications on page 223 you have a request for $92,500 for equipment. This is a reduction from last year of $3,100.

Where in the justifications do I find a breakdown of this item?

Dr. ROGERS. I did not understand the item to which you referred on that page.

Mr. MARSHALL. In the justifications you sent up to us at page 223 you have an item under No. 31. You show $92,500 estimated for 1963. This is a reduction of $3,100.

Where in the justifications is there a breakdown of this item?

Dr. ROGERS. Mr. Marshall, the large part of that item, $85,000, in 1962 as well as in 1963, is for the purchase of medical literature. This is the book stock which is classed as equipment in the budget. That is the largest item there.

The miscellaneous office and library equipment will account for $5,600, and the remaining $1,900 is to purchase the station wagon for which we have asked and which we will need when we get out to the new building.

Mr. MARSHALL. Will the $85,000 you mention be a recurring item?

Dr. ROGERS. Yes, sir; that has been the level of expenditure for medical literature for the last 2 years, at least. We will have to expect that it will continue in the future. This is our basic stock of books and journals which we are getting into the library.

Mr. MARSHALL. Why does that come under the item of equipment rather than supplies?

Mr. KELLY. That is classified under the joint regulations which govern all Federal agencies as equipment, because it has a useful life value of in excess of a year.

Mr. MARSHALL. Thank you, Mr. Kelly.

You are now in a position to assure me that there is no more danger of any of these valuable publications falling in the creek that runs under the old building.

Dr. ROGERS. I believe so; if we can just get this stuff out of the old building successfully and move into the new one, we will be in good shape.

1962 OBLIGATION RATE

Mr. LAIRD. What is your obligation rate up to January 1?

Dr. ROGERS. We had total funds available in the first half of $939,000 and our actual obligations in the first half were $903,000. We obligated $35,000 less than we had available.

GROWTH OF APPROPRIATIONS

Mr. LAIRD. I note that your appropriation back in 1956 was about $1,215,000. This has been a growing activity.

What will be the leveling-off point? In other words, when will this program level off?

Dr. ROGERS. Mr. Laird, I do not believe you were here when I said earlier in my testimony that if this increase we are requesting is granted, which includes an increase of 16 new positions to bring the staff to a level of 250, the staff of the library for the first time in over a decade will be as large as it was the day I walked into the door of the library as the Director.

Our program has been growing. There has been no Parkinson's law going on here so far as personnel are concerned: 1963 will be the first time in 13 years that the staff has been larger than it was in 1950 and before—rather, as large as it was then.

Some of these increases are concerned with the transfer of the science translation program from NIH. There was $427,000 previously carried in the NIH program which is now transferred to us and being carried in our program.

Another item is the sum of money required to presecute the MEDLARS program. There is $500,000 for that this year which has come from the Heart Institute, and compared to that $500,000 that we have available during the current fiscal year, this budget provides $720,000 for fiscal year 1963.

These are the reasons the totals are growing.

Also, I might add that the $318,000 that we have in next year's budget for the maintenance of the new building, which will be transferred to the National Institutes of Health, is an item which never appeared in our budget at all until the current year because of the GSA arrangement for taking care of maintenance of the building.

Mr. LAIRD. That is all I have.

Mr. FOGARTY. Mr. Michel?

Mr. MICHEL. I have no questions.

Mr. FOGARTY. Thank you very much, Dr. Rogers.

WEDNESDAY, FEBRUARY 21, 1962.

RETIRED PAY OF COMMISSIONED OFFICERS

WITNESS

HARRY L. DORAN, CHIEF FINANCE OFFICER

Program and financing

[In thousands of dollars]

	1961 actual	1962 estimate	1963 estimate
Program by activities: Retirement payments and survivors' benefits (total program costs—obligations) (object class 13)	1,927	2,377	2,671
Financing: New obligational authority (appropriation)	1,927	2,377	2,671

Mr. FOGARTY. Mr. Doran, have you a statement on the retired pay of commissioned officers?

Mr. DORAN. Yes, sir; I have a very short statement I can put in the record.

Mr. FOGARTY. This is a completely uncontrollable item under the law on the retirement system for commissioned officers. Is that right?

Mr. DORAN. That is entirely correct.

(The statement referred to follows:)

STATEMENT BY CHIEF FINANCE OFFICER, PUBLIC HEALTH SERVICE, ON RETIRED PAY OF COMMISSIONED OFFICERS

Mr. Chairman and members of the committee, this is an indefinite appropriation which authorizes such amounts as may be necessary during fiscal year 1963 for payments to retired commissioned officers of the Public Health Service and to survivors of deceased retired officers. Benefits to retired officers are authorized by section 211 of the Public Health Service Act while those to survivors are authorized by the Uniformed Services Contingency Option Act of 1953. The amounts of these benefits are fixed by law and payments are not subject to administrative control.

The estimated requirement of $2,671,000 is based on a projection of beneficiaries now being paid with adjustments for anticipated additions and terminations. On December 1, 1961, 382 retired officers and 30 survivor annuitants were on the roll. It is estimated that this number will reach 388 by June 30, 1962, and 432 by the end of fiscal year 1963. The projection contemplates no change in the current number of survivor annuitants.

Mr. FOGARTY. Thank you, Mr. Doran.

WEDNESDAY, FEBRUARY 21, 1962.

SALARIES AND EXPENSES, OFFICE OF THE SURGEON GENERAL

WITNESSES

DR. JOHN D. PORTERFIELD, DEPUTY SURGEON GENERAL
DR. JAMES WATT, ASSISTANT SURGEON GENERAL
DR. LUTHER L. TERRY, SURGEON GENERAL
JAMES F. KELLY, DEPARTMENT BUDGET OFFICER

Object classification

[In thousands of dollars]

	1961 actual	1962 estimate	1963 estimate
11 Personnel compensation:			
Permanent positions	3,714	4,251	4,474
Positions other than permanent	16	20	20
Other personnel compensation	35	5	5
Total personnel compensation	3,766	4,276	4.499
12 Personnel benefits	323	380	399
21 Travel and transportation of persons	130	151	172
22 Transportation of things	14	10	11
23 Rent, communications, and utilities	224	223	224
24 Printing and reproduction	165	166	205
25 Other services	72	42	60
Services of other agencies	223	161	171
26 Supplies and materials	66	55	56
31 Equipment	82	49	52
Total obligations	5,064	5,514	5,850

Personnel summary

	1961 actual	1962 estimate	1963 estimate
Total number of permanent positions	592	627	652
Full-time equivalent of other positions	3	4	4
Average number of all employees	526	584	609
Number of employees at end of year	563	609	624
Average GS grade	7.6	7.8	7.9
Average GS salary	$6,811	$6,953	$6,999

Program and financing

[In thousands of dollars]

	1961 actual	1962 estimate	1963 estimate
Program by activities:			
1. Public health methods and reports	$701	$800	$800
2. International health activities	146	201	200
3. Management and central services	4,138	4,599	4,850
4. Adjustment of prior year costs	−24		
Total program costs [1]	4,961	5,600	5,850
Change in selected resources [2]	103	−86	
Total obligations	5,064	5,514	5,850
Financing:			
Comparative transfers to other accounts	2,224		
Unobligated balance lapsing	80	46	
New obligational authority	7,368	5,560	5,850
New obligational authority:			
Appropriation	7,226	5,375	5,850
Transferred (42 U.S.C. 226) from—			
"Assistance to States, general"	142		
"Nursing services and resources"		32	
"Water supply and water pollution control"		34	
"Radiological health"		20	
"Dental services and resources"		100	
Transferred to "Operating expenses, Public Buildings Service," General Services Administration (75 Stat. 353)		−1	
Appropriation (adjusted)	7,368	5,560	5,850

[1] Includes capital outlay as follows: 1961, $58,000; 1962, $82,000; 1963, $68,000.

[2] Selected resources as of June 30 are as follows: Unpaid undelivered orders, 1960, $37,000; (1961 adjustments, −$24,000); 1961, $116,000; 1962, $30,000; 1963, $30,000.

Mr. Fogarty. Dr. Porterfield, are you ready?

General Statement

Dr. Porterfield. Yes, sir.

I have submitted to the committee a short statement and I can abbreviate that further verbally.

Mr. Fogarty. All right.

(Dr. Porterfield's statement follows:)

Statement by the Deputy Surgeon General on "Salaries and Expenses, Office of the Surgeon General"

You have heard from our Surgeon General, our bureau chiefs, and our program directors about all of the activities in which the Public Health Service is engaged and, we hope, have felt that good value was received in return for the very substantial appropriations the Congress gave us in fiscal 1962.

As is customary, my presentation of the estimate for "Salaries and expenses, Office of the Surgeon General," comes toward the end of the hearings, and is for a very modest amount in comparison with that of our other three bureaus.

Much of our requested budget is to cover the very considerable central services needed by an ever-larger Service. A smaller portion is for support of the immediate Office of the Surgeon General where Service policy is developed and implemented. This quite difficult task has its own rewards, not visible in the same way as is a new vaccine or drug, but appreciable in terms of the Service's steady and healthy growth.

We are continuing to make progress in arranging the organization and functions of the Office of the Surgeon General along the lines recommended by the Study Group on Mission and Organization of the Public Health Service. During the past year we have assigned the three chief professional officers of the Service to full-time duty in the Office of the Surgeon General and have transferred funds for support of their offices to this appropriation.

The chief professional officers of the Service, as this committee knows, function to orient the Service and their professions to goals and objectives in which cooperation should be achieved. Dr. Knutson, who has served as Chief Dental Officer of the Public Health Service since 1952, has recently retired after 30 years of active duty. We are going to miss Dr. Knutson greatly, for it was he who was a prime mover in developing the program of water fluoridation which has done so much for the prevention of caries. However, Dr. Knutson is not leaving the field of public health, for he has accepted the position of professor of preventive dentistry and public health administration at the University of California in Los Angeles.

Retirement has struck hard this past year, because we have also lost Mr. Mark Hollis who has been our Chief Engineering Officer for the past 12 years. Mr. Hollis has served the Public Health Service in a wide variety of responsible assignments. He also is continuing his activity in the field of public health, since he will serve as Chief Engineer of the World Health Organization in Geneva.

Dr. Lloyd and Mr. Atkins, who have recently assumed the positions of Chief Dental Officer and Chief Engineering Officer, are both highly valued members of the Public Health Service team, and we confidently expect that they will continue and enlarge upon the fine work done by Dr. Knutson and Mr. Hollis.

In addition to the transfer of 10 positions and $145,000 for the chief professional officers and their staffs, our appropriation this year reflects the transfer of 4 positions and $41,000 for regional office liaison activity and adjudication of claims. These activities were previously financed from appropriations of the Bureau of State Services but are considered more appropriate for the Office of the Surgeon General. The activities supported by the estimate of $800,000 for public health methods and reports heretofore have been administered by the Division of Public Health Methods. Studies are currently underway to determine the most effective utilization of the competences of this staff. Much of the work in the field of medical economics as well as studies regarding the organization of health services is closely related to programs of the Division of Community Health Services. In order to effect better coordination, the employees paid from this appropriation who work on these activities now report to the Chief, Division of Community Health Services. When studies are completed, as they will by the close of this fiscal year, we contemplate a complete realinement of the organization and function of the Division of Public Health Methods.

In the field of international health, Congress allowed us an increase of four positions for the current fiscal year. We are not at this time requesting any change for fiscal 1963. While our participation in international health activities has steadily increased, it has been possible to keep reasonably well abreast of the programs that have been developed to date.

For management and central services we are requesting an increase of 25 positions and $337,000. The programs and offices financed under this activity find it extremely difficult to cope with the workload resulting from expansion of program operations throughout the Service. The Division of Finance and the Office of Personnel are the two organizational units having the greatest concentration of employees and are the ones to receive the greatest workload impact from program expansion. Neither organization received any increase in 1962 although total appropriations for the Service increased by about $330 million or 31 percent over 1961.

It is difficult to establish with any degree of precision the relationship between workload in the Office of the Surgeon General and program expansion elsewhere. To demonstrate that such a relationship does exist, I cite the following from numerous examples:

1. The Office of Information received 37,000 written inquiries in 1956 compared with 75,000 in 1961.

2. From 1956 to 1961 the number of permanent positions has increased from 22,685 to 32,400 and the number of active duty commissioned officers from 2,964 to 3,979.

3. The average number of general ledger accounting transactions per month has increased from 5,249 in 1956 to 14,000 in 1961.

We are endeavoring in every possible way to meet these increased demands by finding more efficient and economical methods of operation. You have heard in earlier discussions about the review of our personnel system under the leadership of former Secretary Folsom. For the past 2 years the feasibilty of utilizing automatic data processing equipment for accounting purposes has been under consideration. It has been determined that automatic data processing on electronic computers would materially improve the quality of reports for which our Division of Finance is responsible. The data will be processed on the computer leased by the Office of Health Statistics, and the system will be fully operational by the end of this fiscal year. We anticipate greater speed and more depth of information from the new procedure which should materially increase general Service effectiveness.

The total estimate of $5,850,000 includes an increase of $335,660 over anticipated obligations for 1962. I shall be glad to answer any questions.

Dr. Porterfield. I am afraid I cannot bring as much of the same glamour and appeal to my testimony as the operating programs can, but I know you realize the importance of this part of the Public Health Service in the development of policy and the provision of central services which make the rest of it possible.

REORGANIZATION OF PUBLIC HEALTH SERVICE

We are continuing our reorganization of the Public Health Service which was recommended by the study group established several years ago.

One of the functions which has been accomplished recently has been a transfer to the Office of the Surgeon General of the offices of the three chief professional officers, and in addition to the transfer of these people and their staffs we have recently transferred four positions and $41,000 for our regional office liaison, so that now the Surgeon General relates directly to our regional office staff for all programs of the Public Health Service.

One further thing in which we are engaged is a study of the present activities of the Division of Public Health Methods, a great part of which moves into the area of community health practice in a coordination of the programs where we service the States and communities of the country.

A number of the employees of this Division already have been assigned to the chief of the Division of Community Health Services and we hope to be able by the end of this fiscal year to establish a complete realinement of the organization and function on the one hand of these people who will be transferred and on the other hand of the staff activities in the Office of the Surgeon General.

INTERNATIONAL HEALTH ACTIVITIES

Our participation in international health activities has steadily increased. As you heard from the Surgeon General previously Dr. James Watt is now in charge of this activity. We are not asking for any increase for the coming year in this particular program, although work continues.

We are requesting an increase of 25 positions and $337,000 for our management and central services. This comprises the Division of Finance, the Office of Personnel, and the immediate Office of the Surgeon General.

All of these activities have a relationship to the workload of the whole Public Health Service but it is one which is a little hard to establish in precise ratio.

I can point out several examples. Our Office of Information in the Office of the Surgeon General, for example, has just about doubled the amount of written inquiries which it receives in a year's time in the last 5 years.

The number of positions in the Public Health Service has gone from 22,685 to 32,400. Our commissioned officer corps has gone from a little less than 3,000 to almost 4,000.

In our fiscal activities general ledger transactions have increased from 5,200 in 1956 to 14,000 in 1961; that is per month.

We are able to encompass a great deal of this increase by attempting to find and establish more efficient and economical methods of operation.

One example: Within the last 2 years we have been studying the use of automatic data processing equipment for the accounting activities. It appears that electronic computers will materially improve the quality of our reports. We hope with the assistance of the Office of Health Statistics to get such a system into operation by the end of this year.

1963 BUDGET ESTIMATES

Our total estimate is $5,850,000 which includes an increase of $335,660 over the 1962 anticipated obligations.

If I can answer any questions I shall be glad to.

Mr. Fogarty. The appropriation for 1962 is adjusted for transfers, $5,560,340. The request for 1963 is $5,850,000, an increase of $289,660.

RESERVE OF 1962 APPROPRIATIONS

You have had put in reserve $46,000.

Dr. Porterfield. That is right.

Mr. Fogarty. To what activity is this reserve applied?

Dr. Porterfield. During the present year this reserve is being taken from "Public health methods and reports," in which we took one position and $14,000, "International health," one position and $16,000, and the "Management and central services," "Immediate Office of the Surgeon General," two positions and $16,000.

Mr. Fogarty. You took one out of "International health"?

Dr. Porterfield. Yes, sir. We tried to take this reserve out of those areas in which we had obtained an increase in the 1962 appropriation.

Mr. Fogarty. You also knew the chairman of this committee and the chairman of the Senate committee were very active in getting the international health bill through Congress a couple years ago.

Dr. Porterfield. That is right, sir.

Mr. Fogarty. I just thought I would remind you.

Dr. Porterfield. We have not forgotten.

INCREASE FOR MANAGEMENT AND CENTRAL SERVICE

Mr. Fogarty. All of your increase is for management and central services. Give us a little more detailed statement as to why you need an additional $337,000 and 25 positions.

Dr. Porterfield. The changes specifically are in such things as this: Management appraisal and staff assistants for the Surgeon General. This is the staff which attempts to appraise the operations which go on all throughout the Service and to develop staff papers for the determination of policy and the evaluation of the efficiency of these programs. There is a considerable area to cover. We are asking for an increase of $34,000 and two positions in that activity.

In the Division of Administrative Services, the central services for all the Public Health Service, we are asking for four positions and $45,000 to provide better direction and administration of property management, records management, and communications throughout the Service.

We are asking for four positions and $54,000 in financial management to cover the large increase in load in our ledger and accounting activities throughout the Service.

In personnel recruitment and management, which is one of our most vital activities, we are asking for an increase of 10 positions and $160,000. Five of these are in the operations branch to cover the personnel management of the almost 30,000 people we have aboard now, and the other five positions are in the recruitment branch for the selection and commissioning of officers for our commissioned corps.

Finally there are five positions and $43,000 for the Office of Information which has this double load I described.

INITIAL REQUEST FROM BUDGET BUREAU

Mr. Fogarty. What was the amount of the request you made of the Bureau of the Budget?

Dr. Porterfield. $6,251,000 and 685 positions. The reduction made was 33 positions and $401,000.

Mr. Fogarty. What did the Department cut?

Dr. Porterfield. Twenty-two positions and $223,000.

Mr. Fogarty. Give us a complete breakdown of what the Department cut you and what the Bureau of the Budget cut was.

Dr. Porterfield. Yes, sir.

(The information requested follows:)

Salaries and expenses, Office of the Surgeon General, fiscal year 1963 budget estimates

Activity	Estimate to Department		Reduction by Department		Estimate to Bureau of Budget		Reduction by Bureau of Budget		President's budget	
	Positions	Amount	Positions	Amount	Positions	Amount	Positions	Amount	Positions	Amount
Public health methods and reports	93	$817,000	0	0	93	$817,000	1	$ 17,000	92	$800,000
International health activities	34	295,000	7	$46,000	27	249,000	5	49,000	22	200,000
Management and central services:										
Immediate Office of the Surgeon General	66	769,100	0	0	66	769,100	2	16,000	64	753,100
Division of Administrative Services	114	884,100	7	49,000	107	835,100	4	45,000	103	790,100
Division of Finance	156	1,205,200	0	0	156	1,205,200	4	51,000	152	1,154,200
Office of Personnel	192	1,823,500	8	128,000	184	1,695,500	12	178,000	172	1,517,500
Public inquiries and information	39	308,800	0	0	39	308,800	5	45,000	34	263,800
Other central services and contingent items	13	371,300	0	0	13	371,300	0	0	13	371,300
Total salaries and expenses, Office of the Surgeon General	707	6,474,000	22	223,000	685	6,251,000	33	401,000	652	5,850,000

Mr. Fogarty. All this new legislation which has been added this past year and what will come out of this session of Congress creates a heavier load on your office doesn't it?

Dr. Porterfield. Yes, sir. Many of the policy people on the staff of the Surgeon General have to spend considerable time not only on the development and activation of the new legislation but in the staffing of plans for anticipated legislation.

PATENT ADMINISTRATION

Mr. Fogarty. Have you any problems in the patent area?

Dr. Porterfield. This is a very fast-growing problem; yes, sir. It has been a problem we have had for several years at least and which has grown steadily. So far we have attempted to handle it with our own administrative staff.

We are now seeing clearly that it has reached a magnitude that we will have to ask very soon for a specialist type of staff in the Office of the Surgeon General.

This is for several reasons. One is the load itself. With the amount of research support we are providing in this country, and the length of time we have been doing it, we are beginning to get a considerable increase in the number of invention reports which come back to the Public Health Service. Each of these is a different case and a decision has to be made as to the best disposition of this invention either by publication or the filing of patents, or by the permission for the inventor to file some kind of a limited patent so we can induce more development on the part of the inventor or commercial interest.

The workload has gone up now to where we have a backlog of perhaps 50 cases which need patent type investigative work.

In addition to the increase in the workload we can anticipate even further complexity because of the development of programs in the field of environmental health, and here where we now have support of research programs in a field in which many of the inventions may have a high commercial potential we anticipate we will have to be very alert and very prompt in making decisions as to the disposition of any of these inventions.

Mr. Fogarty. I understood the chemotherapy program's problems have been pretty well straightened out but that there is some possibility you may still have some trouble in that area.

Dr. Porterfield. It is still possible; yes, sir.

Mr. Fogarty. One investigator may be getting a grant from the Institutes of Health, grants from the Cancer Society, and some of his salary might be coming from the medical school and laboratory in which he is working. To say whose support resulted in a particular discovery is a difficult decision to make, is it not?

Dr. Porterfield. At the present time the Surgeon General is supposed to determine the disposition of any invention, whenever any support, however minimal, has been given to the inventor.

We will have to look forward to developing a policy very soon for handling these inventions which come out of a laboratory which has had multiple support and where there has not been the precise kind of identification as to who bought which drug, who paid for which hour's work, which technician's salary came from which supporter in order to handle this question of the invention rights with multiple support. This will take some staff time of some well-trained people.

NEED FOR ADDITIONAL PATENT ATTORNEYS

Mr. Fogarty. What do you need to protect yourselves and the Government and do a good job? Do you have any patent attorneys now?

Dr. Porterfield. One patent attorney we have had for 2 years who covers all of the Public Health Service.

Mr. Fogarty. I would think that is not enough.

Dr. Porterfield. It is not. That is why we have a backlog of 50 cases at the present time.

Mr. Fogarty. What do you need to give yourself proper protection and get on top of this problem?

Dr. Porterfield. This is something we have studied intensively only in the past month or two. We cannot tell precisely yet the full extent of our need.

I would say we will probably find the need very soon and can establish proof of need for approximately three patent attorneys in the Office of the Surgeon General, together with a patent type of person in each of the operating bureaus of the Public Health Service.

We have already instructed the bureaus to plan for this in their own budgets.

Mr. Fogarty. You think as of now you would need three additional patent attorneys in the Surgeon General's Office?

Dr. Porterfield. That is my opinion; yes.

Mr. Fogarty. For 1963?

Dr. Porterfield. Yes, sir.

Mr. Fogarty. How much money would it take?

Dr. Porterfield. Between $50,000 and $75,000.

Mr. Fogarty. Do you need anything else in this area?

Dr. Porterfield. No, sir. I think we should not assess it any more closely than that until we have some kind of a beginning, more than we have in this area now, and see how close we come to covering the field and how fast it develops.

Mr. Fogarty. You will be satisfied if you get the three additional people and the $60,000 to $70,000?

Dr. Porterfield. More than satisfied. We would be surprised and delighted.

Mr. Fogarty. I think you should have this because this can cost the Government a lot of money.

Dr. Porterfield. That is right, sir.

INTERNATIONAL HEALTH

Mr. Fogarty. Dr. Watt, have you a statement on what you are doing? We have not heard from you since you have been on your new job. I was amazed when they took away one position in international health and wouldn't let you have all the money that Congress appropriated.

Do you have a statement?

Dr. Watt. No, sir.

Mr. Fogarty. Tell us what you are doing.

Dr. Watt. I have been very much involved in a learning process in the last few months. I moved down to this job in October, as you know.

Mr. Fogarty. I thought it was moving up.

Dr. Watt. I meant downtown.

Mr. Fogarty. Since international health has great possibilities I think this activity should grow.

Dr. Watt. I would like to give you the impressions I have from this short look at it. It seems to me that you look at the international aspects of our program in three major portions.

The first one, the one which has been established for some time, is in our relations with the multilateral organizations. This is the World Health Organization, an even older relationship with the Pan American Health Organization where we are also members of the WHO regional office for the Americas—and the South Pacific Commission.

Mr. Fogarty. I cannot see any reason why we do not launch a full-scale international research program with Latin America. I know it takes money to do it and you cannot do it with what you have.

Dr. Watt. That is right.

Mr. Fogarty. Do you have the authorization to go ahead? Under the general authorization we have that authority; do we not?

Dr. Watt. Only as an extension of the general authority for improving the health of the people of the United States, sir. The delegation of authority to HEW under Public Law 86–610 has not been made from the President. Such delegation would provide a somewhat broader base than the general authority of the Public Health Service itself.

This request was made by HEW, I believe, in October of 1960.

Mr. Kelly. That is right, sir.

Dr. Watt. But that authority has not been delegated so there is no basis for going ahead on that now.

DEVELOPMENT OF BILATERAL PROGRAMS

The two areas that I think are the most important for concentration now are in the development of some of our bilateral programs. The work that the NIH has done in establishing the joint programs between the medical schools, university at Cali, Colombia, and Tulane for example. This illustrates the kind of collaboration between institutions in this country and those abroad which is extraordinarily important.

One country, a close neighbor of ours, has been somewhat reluctant to utilize the programs which have been generally developed beginning with the old Institute of Inter-American Affairs. At the same time they feel strongly the kind of collaboration between schools and universities working within the countries is highly important and desirable. They would like to see the NIH approach developed in their country. They gave me as an example a plan developed 15 years ago which was an almost identical arrangement with the current plans of the joint school activities. The plan was not used because of the feeling there was much too much taking over of responsibility by the U.S. Government in their own country. They felt the collaboration with the schools was entirely appropriate but they did not feel it was quite right for an organization which was entirely a U.S. Government organization taking over and running a facility in their own free and independent country.

They feel rather strongly that the NIH approach is an important form of development they would like to see expanded. One somewhat ironical fact is that the plan which never got going was with one of the schools in our current international program.

They said that if this plan had gone through at the time it was made 15 years ago, we would have had a whole generation of physician graduates of that school who would have had the benefit of training by, and consultation with, people in the United States. This would have led to better relationships and better understanding of mutual problems.

They felt that the whole history of relations between our countries was to a degree being affected by this failure to go ahead with such a collaborative arrangement. I would hope we could identify such opportunity and encourage it and let our schools take the initiative of doing it.

I have had a number of requests recently for information about just that type of thing. One school in New York State would like to develop a plan for their medical students to serve part of their time on hospital wards in a different culture. They would be able to arrange a reciprocal arrangement with the senior students, for example, of a medical school somewhere else. Some students would come here and take part of their work in this country, and vice versa. I think this, again, would be of tremendous value.

This type of work is going to take planning which does not now exist. I hope I will be able to report some progress on that soon.

EXAMPLES OF INTERNATIONAL COOPERATION

Mr. Fogarty. Will you expand on your statement and tell the committee just how you think this program can be expanded, in what areas, and how much additional money could be effectively used next year? Can you get us such a statement?

Dr. Watt. Yes, sir. The thing that has been most impressive to me is the tremendous desire on the part of people in this country to help in the international field.

Mr. Fogarty. I hope you take some time with your statement, because there are some people around here who do not think much of international programs of any kind, if you know what I mean. That is why I would like for you to take the time and to get us a complete statement, including examples of international cooperation that would exist under an expanded program and what you think we would gain by such a program.

Dr. Watt. I will do that.

(The information follows:)

Programs and Proposals in International Health

RESPONSIBILITY OF U.S. GOVERNMENT IN INTERNATIONAL HEALTH

The United States has played an active role in the adoption of international health agreements and in the establishment of the World Health Organization.

Public Health Service officers represented the United States at the Paris Conference in 1903, at which the first modern sanitary convention was drawn, and at the Rome Conference in 1907, at which time the Office International d'Hygiene Publique was organized. The United States was one of the first countries to ratify the Pan American Sanitary Code, adopted in 1924.

The United States was particularly active in events leading up to the establishment of the World Health Organization. Dr. Thomas Parran, then Surgeon General of the Public Health Service, was elected President of the International Health Conference in New York in June 1946, which drafted the WHO constitution. The U.S. delegation was active and influential in deliberations of the Conference and many U.S. views were incorporated in the final act setting up the World Health Organization.

The U.S. Government is pledged by the Pan American Sanitary Code to prevent the international spread of communicable diseases; to promote cooperative measures to prevent introduction and spread of diseases between governments signatory to the code; and to stimulate the mutual exchange of information which may be of value in improving public health and combating diseases of man.

When the United States signed the constitution of the World Health Organization, it accepted certain basic principles which established our responsibilities in the field of international health.

The preamble to the WHO constitution notes, among other things, that "The health of all peoples is fundamental to the attainment of peace and security and is dependent upon the fullest cooperation of individuals and States," and that "The achievement of any State in the promotion and protection of health is of value to all." Another important principle in the constitution calls for extension of the benefits of medical, psychological, and related knowledge to all peoples.

One of the 12 objectives of the alliance for progress is "to increase life expectancy at birth by a minimum of 5 years, and to increase the ability to learn and produce, by improving individual and public health." Among measures suggested in the alliance for progress as necessary to achieve this objective are provision of adequate water supply and drainage; control of serious communicable diseases, and eradication of those, especially malaria, for which effective preventives are available; and training of health and medical personnel. Other measures include improvement of basic health services at national and local levels; improvement of nutrition; and intensification of scientific research and effective application of research findings to the prevention and cure of illness.

RESPONSIBILITY OF PUBLIC HEALTH SERVICE IN INTERNATIONAL HEALTH

The Public Health Service, as the principal health agency of the U.S. Government, carries out responsibilities in relation to U.S. adherence to international agreements relating to health and its membership and participation in international organizations in health and related fields.

The international health activities of the Public Health Service have developed over the years to meet U.S. obligations as members of these organizations, particularly the Pan American Health Organization and the World Health Organization.

The Service's early international functions, such as foreign quarantine activities, medical examinations of prospective immigrants, and reporting occurrence of epidemic or pestilential diseases, are still performed. The increasing responsibility of the United States in the international health field by virtue of our membership in international organizations, has resulted in a corresponding increase in the Service's international activities. The expandng international effort at the National Institutes of Health, for which a separate statement has been furnished, is a notable example of this increase.

Within the framework of the objectives of WHO and PAHO and of the measures for achieving the health goal of the alliance for progress, it is clear that the Public Health Service will have continuing and increasing responsibility in international health. There will be increasing demand for staff work in relation to U.S. participation in these organizations as their programs expand, and in supporting the agencies responsible for carrying out programs under the alliance for progress.

INTERNATIONAL ACTIVITIES OF THE PUBLIC HEALTH SERVICE

Although the Office of International Health is the primary point of staff responsibility for the Service's international activities, international programs are found in all parts of the Public Health Service.

The Bureau of Medical Services is responsible for the foreign quarantine program, physical and mental examination of incoming aliens, and medical examination of alien farm laborers who come to the United States during peak periods of agricultural harvest.

In the Bureau of State Services, certain international activities arise from programs conducted for domestic objectives or problems. For example, training activities at the Communicable Disease Center provide training to foreign scientists and health workers; research conducted by the Bureau may of necessity lead to investigation outside the United States; and some research is conducted through participation in a worldwide network of laboratories for communicable disease control purposes sponsored by the World Health Organization, for example, the International Shigella Center and the International Influenza Center for the Americas at the Communicable Disease Center.

The extensive international activities of the National Institutes of Health include the support of research, interchange of scientific personnel, and strengthening of teaching and research institutions through development of relationships between foreign and U.S. institutions.

The international activities of the National Library of Medicine are those concerned with acquisition of materials for the Library's collection and with the interchange of scientific information among nations.

The Public Health Service acts in an advisory capacity to the medical committees of the treaty organizations, SEATO, CENTO, and NATO. The member and alternate member of the medical committee of NATO are Public Health Service officers. The National Heart Institute is working actively with the SEATO Cholera Research Laboratory.

Personnel from all areas of the Public Health Service frequently serve as technical advisers to international agencies.

The widespread international activities of the Service are described in somewhat more detail in the statement prepared by the National Institutes of Health.

OFFICE OF INTERNATIONAL HEALTH

The Office of International Health is the principal adviser to the Surgeon General on international health matters. This includes policy guidance and advice on program development, preparation of official positions on international health questions, and provision of staff support in relation to U.S. participation in international health organizations. The Office is responsible for external relations of the Service with other Federal agencies, private groups, and other governments in international health matters. The Office maintains continuing relationship with international health organizations, including arrangements for detail of personel from the Service or other Federal agencies to these organizations.

The Office serves as technical adviser to the Agency for International Development (AID) and assigns PHS officers to its missions overseas. Also, from time to time, the Service is asked by AID to send technical experts to evaluate health programs or to survey health conditions and services in other countries.

The Office also arranges for assignment of PHS officers to the Peace Corps. At the present time, 15 PHS physicians are on duty with the Peace Corps, 4 permanently stationed in Washington headquarters, 3 in indoctrination prior to going overseas, and 8 at project sites.

The Office negotiates with the Soviet Ministry of Health for exchange of scientists under the official United States-U.S.S.R. exchange agreement, and, in cooperation with NIH and private research institutions, plans itineraries for exchange missions and scientists. It also provides programing services for foreign health and medical personnel who are in training in the United States under auspices of AID, WHO, and, to a lesser extent, Department of State and private sources.

Because of the diversity and extent of the Service's international programs, an important function of the Office of International Health is that of coordinating and assisting, where possible, international activities of other parts of the Service.

The Public Health Service is frequently called on for emergency assistance in epidemics or other emergency health problems outside the United States. The Office, working with the Department of State and the appropriate area of the Service, helps mobilize personnel and materials that the situation requires and get them to the scene of the emergency. For example, last November there was an outbreak of poliomyelitis in Santiago, Chile. The Embassy in Santiago sent through the Department of State a request for equipment to help in the epidemic, followed by a later request for 100,000 doses of oral polio vaccine. There was also an invitation for the Public Health Service to send an epidemiological team to observe and participate in research studies on control of the epidemic. Less than 48 hours after PHS received the request for the team, two epidemiologists from the Communicable Disease Center were en route to Santiago with the vaccine where for 3 weeks they engaged in a mass vaccination campaign.

The Office performs a number of Service-wide functions, including processing authorizations for international travel for Public Health Service personnel who go abroad on official business. For example, in a recent 3-month period, 201 PHS officers attended scientific meetings abroad. During this same period over 100 officers went overseas on other special assignments, usually as consultants requested by international organizations or other governments.

The activities of the Office fall under three major headings: "Multilateral," "Bilateral," and "People to People." A brief description of current activities which should be expanded, or new programs which should be started, are outlined under these three headings:

Multilateral

The Public Health Service grants frequent requests of WHO and PAHO for short-term assignments of officers as technical advisers to these Organizations. Last year, for example, 46 PHS officers were assigned to WHO or PAHO for periods ranging from 2 weeks to 3 months. Recent examples of these assignments include a health education specialist who was a WHO consultant to the Japanese Ministry of Health for 6 weeks to assist the Ministry in planning a coordinated technical review and compilation of significant studies and research in health education; another officer served as a temporary adviser to WHO in India to assess the possibilities of initiating a WHO study to collect information concerning the incidence of oropharyngeal cancer; other PHS personnel have served as WHO consultants to appraise the present status of bilharziasis in India, to participate in a WHO Study Group on Internationally Acceptable Minimum Standards of Medical Education, and to advise the Government of Brazil on the application of fluorspar for the fluoridation of drinking water.

A point of emphasis here is that these officers were assigned at the request of the Organization. It is proposed that the Public Health Service should seek assignment of its personnel to WHO and PAHO as an important aspect of its career development program. It would be extremely valuable for PHS officers to work with these Organizations as they develop plans for eradication of tuberculosis, in assignments in epidemiology, communicable diseases, health statistics, and environmental sanitation. As emerging nations develop or expand their health services, there will be a corresponding increase in requests for WHO and PAHO assistance. This will increase the need for technical specialists outside the Organization. Assigning PHS officers to these Organizations will, therefore, have the double advantage of acquainting the officers with the work of WHO or PAHO, which is extremely important in view of the fact that all parts of the PHS have international activities, and of helping the Organizations provide assistance to their member nations.

An increase of $75,000 for fiscal year 1963 would make possible the assignment of five officers to international Organizations for career development.

Bilateral

Another important area, and one which will probably become even more so in the future, is that of fostering institution-to-institution activity in the matter of interchange of research and student training. This is already being done to some extent under Public Law 86–610. Such an approach is excellent and I believe it will be especially effective in Central and South America. I feel sure that the National Institutes of Health will go ahead vigorously and effectively in this activity.

In this same general area, I would like to see an exchange of professors as well as students and research workers. The need is there, and we have evidence of interest. For example, a little over a year ago the Public Health Service queried each PHS regional office, each State health department, and all local or district health departments serving 300,000 population or more, to ascertain the extent of their interest, in principle, on an exchange program with English-speaking countries.

More than two-thirds of the departments responding expressed an immediate interest in such an exchange. Others were interested but reserved because of shortage of funds or staff. In general, the responses indicated a significant interest in an exchange program with English-speaking health officials, for varying periods, in varying disciplines, and in varying types of public health assignments. If the need and interest exists between the English-speaking countries, theer is an even greater need for an exchange of health workers with Latin American nations.

A number of questions arise in connection with the initiation of an exchange program. Among these are: What are the disciplines in which effective exchanges can be carried out, and for what periods of time? Shall the host government or the home government pay for international travel involved? To what extent would it be necessary to supplement salaries of exchange professors?

These are some examples of questions which must be asked and answered before an exchange program can be soundly developed. Additional funds in the amount of $30,000 would enable the Public Health Service to study these problems and, as solutions are found, to plan toward initiating an effective program.

People to people

A new area which we hope to develop is prompted by the many and increasing requests from private citizens or groups wanting to know how they can serve in a health or medical program overseas. For example, in recent correspondence the Office of International Health had requests from 53 health and medical personnel wanting to work overseas. These included physicians, nurses, dentists, speech and hearing therapists, architects, and hospital administrators. Added to this correspondence are numerous similar letters coming to other parts of the Service which are referred to the Office of International Health.

A few examples from this correspondence will indicate the genuine interest in serving abroad which has been expressed by this private source of health effort.

A midwestern physician writes: "I have been thinking lately that perhaps I'm wasting my time in private practice. * * * Perhaps there is some area of the world where my medical knowledge could be used to better advantage. * * *"

Two dentists, presently serving with the U.S. Navy, want to teach dentistry abroad when their duty tour terminates in July of this year.

A married couple, both physicians, are interested in working in some medical assistance program in one of the South American countries. Both have very impressive backgrounds of training and experience and close their letter with the statement: "If there is any possible assignment where we might prove useful, we should appreciate being considered."

Another letter comes from a resident in orthopedics who speaks six languages. He is interested in getting an appointment "where the knowledge of orthopedics (treatment and prevention), of foreign languages, and interest in the principles of democracy could be used at their best."

A great deal is being done already to get interested private citizens to places where their services are needed. A substantial and ever-increasing amount of health and medical assistance flows abroad through private channels—missionary groups, private foundations, voluntary associations, professional organizations. So many voluntary agencies have oversea interests that in 1943 there was formed the American Council of Voluntary Associations for Foreign Service, Inc., to provide a channel to share experience, information, and resources in oversea relief, refugee aid, and technical assistance.

The Public Health Service heartily endorses all of the private effort to promote voluntary health and medical assistance abroad. The French statesman DeTocqueville who, after his visit to the United States in the early 1830's remarked on the tendency of Americans to form associations for every undertaking, and the importance of citizens joining together. He said: "In democratic countries the science of association is the mother of science; the progress of all the rest depends upon the progress it has made."

This statement underlines the importance of the voluntary movement which has developed in the United States and which is particularly significant in the field of health and welfare.

One of the newest major activities in private assistance in oversea medical work is that recently started by the American Medical Association. The AMA recruits physicians for temporary service overseas with missionary groups. While the AMA takes the initiative in finding the interested physicians, their qualifications are considered by the missionary agencies and final selection rests with a selection committee of the missionary group.

AMA President Leonard Larson described the program as the "kind of medical world service which can be done during a vacation or a leave of absence." "There is almost unlimited opportunity for medical leadership in the field of international health," he said. "The future good health of a large portion of the world is within our grasp if we will only reach for it."

A great many physicians have taken advantage of the opportunity to serve for short periods and have completed or are engaged in satisfying short-term service overseas. For example, five Tulsa physicians are giving up their practice for 6-week periods to work in the medical center in Miraj, India. The project, endorsed by the Tulsa County Medical Society and financed through church and public contributions, will give 30 weeks of continuous, voluntary service to this Indian medical center, for as one physician completes his 6 weeks of service, another arrives to take over the duty.

In another instance, eight ophthalmologists have developed a plan whereby each will work 1 month in a government hospital in Haiti on a rotating basis. They will pay their own transportation and receive no salary. American companies donate equipment and the Haitian Government charges patients token fees "to cover administrative expenses."

These examples indicate the type of work that is being done and the good that is being accomplished through voluntary channels.

Although there is a great deal of voluntary activity in oversea programs, the many expressions of interest which come to the Public Health Service indicate that many people want help from us in finding the best opportunity for their experience. We are asked with increasing frequency and regularity, "What can I do?"

The Public Health Service has an opportunity and ability to locate and identify what needs to be done in health overseas. However, before we can establish an effective mechanism for channeling the interests, we must take a thorough look at the complete picture of voluntary medical assistance overseas, what others have done or are doing in the people-to-people effort. I am sure that this experience will help us find additional ways of transmitting the energy our people want to give to the places of greatest need.

I think the Public Health Service should plan toward the time when we have in the United States a network of voluntary assistance which can quickly and easily make it possible for qualified people who want to work in oversea programs to do so in a way that will accurately match their skills with the real needs.

Needs

Our immediate need in international health is the creation of a citizens advisory group with a knowledge of and an interest in international affairs to advise the Surgeon General in two areas: (1) In carrying out our responsibilities to multilateral organizations; and (2) planning for a closer relationship with private sources of potential health and medical manpower for oversea work.

For fiscal year 1963, an additional $40,000 would permit the Public Health Service to establish a citizens advisory group on international health and to provide, in the Office of International Health, appropriate staff services for the group.

(For additional information on international activities see pp. 646 to 772.)

Mr. FOGARTY. Dr. Terry, is there anything you would like to say?

Dr. TERRY. No, sir; I think we have covered everything.

Mr. FOGARTY. Do you think the record is complete?

Dr. TERRY. I do not know of any deficiencies at the moment, sir.

Mr. FOGARTY. Thank you very much.

LIST OF WITNESSES

	Page
Ackerman, S. J	82, 97, 134, 152, 182, 194, 232
Anderson, Dr. R. J	1, 316, 381, 402, 428, 466
Andrews, Dr. J. M	1431
Arnstein, M G	264
Bauer, Dr. T. J	1, 97, 134, 232, 358
Bersano, P. G	316, 358, 381, 428
Blomquist, Dr. E. T	182
Brown, Dr. W. J	194
Chadwick, Dr. D. R	402
Chapman, Dr. A. L	82
Colyar, Dr. A. B	358
Daft, Dr. F. S	1368
Doran, H. L	1, 48, 428, 766
Endicott, Dr. K. M	1039
Felix, Dr. R. H	1090
Fishburn, Dr. H. D	601
Fitzgerald, J. E	1335
Gilbertson, W. E	358
Haldeman, Dr. J. C	277
Howells, D. H	466
Hunt, Dr. Halsey	791, 920
Kelly, J. F	1, 48, 82, 97, 134, 152, 182, 194, 232, 264, 277, 316, 428, 466, 601, 619, 722, 767, 791, 920, 1039, 1243, 1335, 1431, 1487
Knott, Dr. L. W	97
Knutti, Dr. R. E	1243
Kreshover, Dr. S. J	791, 1335
Linder, Dr. F. E	722
Lowry, Dr. J. V	1, 601, 619
MacKenzie, V. G	316
Magnuson, Dr. H. J	381
Masland, Dr. Richard	1487
McCallum, G. E	48, 428, 466
Mider, Dr. G. B	791, 920, 1039
Miller, Dr. M. D	601
Murtaugh, J. S	791
O'Rourke, Dr. E. O	619
Porterfield, Dr. J. D	1, 767
Price, Dr. D. E	791, 1039
Riggs, R. E	619
Rogers, Dr. F. B	740
Schmehl, Dr. F. L	1570
Seggel, R. L	48, 791, 920, 1039, 1090, 1243, 1335, 1368, 1433
Shannon, Dr. J. A	1, 48, 791, 920, 1090, 1243, 1335, 1431, 1487, 1570
Smith, Dr. C. A	48, 134
Smith, L. W	134
Stewart, Dr. W. H	152
Telfer, Dr. J. G	619
Terry, Dr. L. L	1, 48, 97, 134, 152, 182, 194, 232, 264, 277, 601, 619, 722, 740, 767, 791, 920, 1039, 1243, 1335
Van Staden, G. A	1090
Watt, Dr. James	767

INDEX

A

Page

- Accident prevention 82
- Aged, chronic diseases and health of the 6, 97
  - Budget estimates, 1963 105, 130
  - Community Health Services and Facilities Act 6, 103
  - Early detection of chronic illness 113
  - Grants to States, increase for 110, 113, 119
  - Home care services, savings in 105
  - Hospital-nursing home cooperation 132
  - Nursing home administrators, training of 115
  - Preventive aspects of programs 104
  - Reserve of 1962 appropriations 106
  - Restorative services 114
  - Rhode Island, progress in 117
  - State requests for assistance 110, 113, 119
  - White House Conference on Aging, implementation of recommendations of 116
- Air pollution 316
  - Agriculture, effect of air pollution on 332
  - Automobiles 325, 328
  - Budget increases, proposed 348
  - Budget request, history of 351
  - Civic associations, support from 340
  - Cost of air pollution 350
  - Emphysema 354
  - Environmental Health Problems, Committee on 344
  - Environmental scientists, need for training of 356
  - Fuel cell developments 327
  - Lead inhalation 326
  - Louisville and Nashville studies, results of 349
  - National air sampling network 348
  - Pollutants and respiratory disease research 331
  - Research, national goals in 343
  - Reserve of 1962 appropriations 321
  - Washington, D.C., air pollution in 325
- Allergy and infectious disease activities 848, 872, 1431
  - Allergies 1460
  - Budget, 1963 872, 1443
  - Collaborative studies 1445
  - Common cold 1462
  - Cystic fibrosis 1450
  - Deaths, disability, and costs 1464
  - Eaton agent, experiments with 1442
  - Field stations 1453
  - Germ- and virus-free animals 1458
  - Highlights of program 1466
  - International centers 1455
  - Malaria research 1451
  - Research applications, financing of 1444
  - Reserve of 1962 appropriations 1443
  - Respiratory disease vaccines 794, 1443
  - Rocky Mountain Laboratory 1452
  - Staphylococcal research 1447
  - Viral disease, chemotherapeutic treatment of 1446
  - Virologic research 1441

Page

Arthritis and metabolic disease activities 871, 1368
  Blood platelets research 1384
  Budget, 1963 871, 1383, 1392, 1396
  Clinical research centers 1408
  Cystic fibrosis 1387
  Deaths, disability and costs 1409
  Diabetics, oral therapy for 1396
  Galactosemia 1386
  Gastroenterology 1397
  Genetic code, breaking the 792, 1385
  Germ-free research 1400
  Gout, studies on 1407
  Molecular biology 1394
  Nutrition, studies in 1401
  Osteoporosis 1391, 1401
  Pediatrics 1399
  Reserve of 1962 appropriations 1392
  Rheumatoid arthritis 1380
  Skin disease research 1395
  Training program 1393
  Ulcers, study of 1398

B

Buildings and facilities 3, 48
  Animal farm 61
  Biologics standards annex 70
  Budget, 1963, history of 60
  Cancer research facility 71
  Communicable disease center 57
  Computer building, extension to 63, 64
  Construction projects 56, 60
  NIH, improvements and repairs at 76
  NIH research center, future expansion of 74
  Puerto Rican facilities, expansion of 65
  Space, rental of 63
  Utilities extension 62
  Water Pollution Control Laboratories 59

C

Cancer Institute 837, 867, 1039
  Breast cancer 1054
  Budget, 1963 867
  Carcinogenesis research 1050
  Chemotherapy program 1049, 1063
  Cytologic examination 1063
  Diagnostic research 1052
  Environmental carcinogenesis program 72
  Ghana Research Center 1065
  Grants, funding of 1055, 1057, 1061
  Highlights of program 1069
  Leukemia outbreak, Niles, Ill 1067
  Mortality, morbidity, and cost of cancer 1068
  Radiation therapy research 1049, 1065
  Reserve of 1962 appropriations 1055
  Swedish cancer research 1066
  Teaching grants 908
  Training programs 1058
  Virus cancer research 1049, 1062
Committee report, 1962, directives contained in 9
Communicable disease activities 134
  Center 57
  Fluorescent antibody technique 149
  Hepatitis 28, 139, 143
  Increases proposed 141
  Influenza control 138, 144, 151
  Laboratory activities 139, 145

Communicable disease activities—Continued — Page
  Polio vaccine — 29, 138, 143
  Rabies control — 147
  Reserve of 1962 appropriations — 140
  Schistosomiasis control — 148
  Tularemia — 147
  Yellow fever program — 141, 144
Communication of medical research findings to the practicing professions, report on — 9, 30, 81, 759, 813
Community health practice and research — 6, 152
  Cancer tests — 172
  Chronically ill and the aged — 6
  Community Health Services and Facilities Act, 1961, implementation of — 6
  Comprehensive health care — 7
  Hospital care, cost of — 175, 177, 180
  Hospitalization requirement — 177
  Insurance:
    Hospital costs, effect on — 176
    Older people, health insurance for — 179
  Kerr-Mills program — 178
  Medical care and public health administration — 159, 169
  Medical economics — 8
  Migratory workers, health of — 174
  Nursing homes — 173
  Reserve of 1962 appropriations — 162
  Training grant program — 161, 163

D

Dental Research, Institute of — 845, 870, 1335
  Budget, 1963 — 1339, 1358
    History of — 870, 1361
  Calcium, importance in development of teeth — 1357
  Caries — 1344
  Chair side assistants — 1352
  Cleft-palate program — 255, 1346
  Dental hygienists — 1354
  Disability and cost of dental diseases — 1363
  Fellowships and training — 1338
  Fluoridation — 1359
  Periodontal disease — 1355
  Recent progress — 1337
  Reserve of 1962 appropriations — 1358
  Woonsocket program — 1354
Dental services and resources — 232
  Budget request to the Department — 249
  Cleft-palate research — 255, 1346
  Dentistry, survey of — 240, 252
  Dentists, decline of ratio to population — 238
  Experimental teaching — 258, 259
  Fluoridation of water — 31, 247, 260
  Oral health, status of — 237
  Program increases — 249
  Reserve of 1962 appropriations — 247, 248
  Surgeon General, Office of, transfer to — 247

E

Environmental health activities. (*See also* Individual programs, this index):
  Air pollution — 316
  Center — 20
  Expanded and integrated program — 5
  Gross report:
    Background of — 5
    Evaluation of — 23
    Recommendations, cost of — 586

Environmental health activities—Continued Page
  Hepatitis, problem of 28
  Milk, food, interstate, and community sanitation 358
  Occupational health, Public Health Service 381
  Program, need for augmented 5
  Progress, highlights of 590
  Radiological health 402
  Waste treament works construction, grants for 466
  Water supply and pollution control 428

F

Foreign quarantine activities 619
  Appropriation, language, change in 630
  Budget for 1963 629, 632, 635
  International air travel, effect of 628
  Personnel:
    Airport positions requested 634, 638
    New York and Miami areas, inspectors for 644
    Overtime pay 627
    State Department, shift from 635
    Visa medical examinations, increase for 629, 635, 642
  Reporting of quarantinable disease, procedure for 643
  Reserve of 1962 appropriations 632
  Smallpox:
    Entrance, prevention of 639
    Nature of 627
    Spread of 625
    Vaccine, purchase of 642
  Vaccination certificate system, weakness of 643, 645
  Yellow fever 628, 630, 640, 645

G

General research and services, National Institutes of Health 796, 834, 867, 920
  Aging:
    Multidisciplinary centers for research 968
    Special statement on 971
  Anesthesiology 991
  Biologics standards 935, 941, 1026
  Budget, 1963:
    History of 866
    Increases, summary of 931
  Genetics research 994
  Grants:
    Funding of 935, 1002
    Procedure for approval of 1002, 1008
    Support grants 796, 957
  Highlights of program 1011
  Instrumentation 993
  International research centers, transfers from 931
  National Advisory Council members 1003
  Nursing research 994
  Perinatal study 967
  Primate colonies 67, 1001
  Reserve of 1962 appropriations 933

H

Health of Americans 24
Health research facilities, grants for construction of 1570
Heart Institute 843, 869, 1243
  Accomplishments, 1961 1255
  Aging, centers for research on 1266
  Backlog of grants projected for 1963 1261
  Baltimore gerontology facility 1263
  Bioengineering 1287
  Budget, 1963, history of 869
  Cholesterol 1257, 1293, 1299

Heart Institute—Continued — Page
- Clinical drug trials — 1262
- Deaths, disabilities, and cost of — 1308
- Examples of research — 1258
- Framingham, Mass., study — 1295
- Grants, allocation of — 1293
- Highlights of program — 1309
- Primate centers — 1297
- Research facility construction:
  - Effect of matching formulas on — 1300
  - Hill-Burton program, variable matching under — 1305, 1306
  - Nonmatching program, report on — 1307
  - Regional facilities — 1297, 1304
  - Variable matching — 1301, 1305
- Reserve of appropriations for 1962 — 1260
- Statements on heart research — 1267
- Strokes — 1263
- Surgery, developments in — 1289
- Training grants — 1260
- Unmet needs in research — 1291

Hepatitis, problem of — 28, 139, 143, 940

Hospital construction activities — 277
- Beds, need for additional — 290
- Budget request, 1963 — 281, 297
- Design of hospitals — 295
- Hill-Burton Act:
  - Contribution of — 281
  - Standards — 304
- Hopedale, Ill., hospital — 303
- Mentally retarded, grants for facilities for — 300
- Nursing homes, standards for — 305
- Operations and technical services, increase for — 299
- Part C hospital construction, reduction in — 283
  - Rhode Island, effect on program of — 291
- Personnel, use of funds for — 307
- Progressive patient care — 313, 314
- Research:
  - Activities in — 294
  - Decrease for — 297
  - Experimental construction program, status of — 309
  - Funds available for — 306
  - Intensive care, designs for — 311
  - Intent of Congress regarding — 306
  - Reserve of 1962 appropriations — 293
- Reserve of 1962 appropriations — 293
- Rural areas, hospitals for — 301

Hospitals and medical care — 601
- Admission rates — 612
- Carville Hospital — 612, 613, 616
- Coast Guard, medical care for — 618
- Galveston and Fort Worth hospitals, status of — 610
- Hansen's disease — 612, 615
- Improved medical care — 609, 612
- Lexington Hospital research — 608
- Medical schools, relation of hospitals to — 611
- Modernization program — 610
- Personnel, increase for — 607

I

Infant mortality — 10, 25

International Health Activities — 646–722, 785

L

Legislative authority, need for — 20

M

Page

- Medical research, national expenditures for 45
- Mental health activities 839, 868, 1090
  - Aging, program for the 1102, 1188
  - Alcoholism, treatment for 1102, 1136
  - Budget, 1963 868
  - Clinical Center research program 1204, 1213
  - Cost of mental illness 1208, 1213
  - Drug addiction:
    - Lexington, Ky., Research Center 1154
    - Special report on 1155
  - Emergency psychiatric service 1103
  - Epidemiology 1191
  - Fellowships 1129
  - General hospitals, psychiatric services in 1104, 1135
  - General practitioners, psychiatric training of 1133
  - Grants:
    - Applications, review of 1209
    - Backlog in 1128
    - Budget for 1210
  - Highlights of program 1214
  - Home care 1174
  - Illness, prevention of 1176
  - Information, clearinghouse for 1130
  - Joint Commission on Mental Illness and Health, Report of 1106
  - Juvenile delinquency 1140
  - Mental retardation 1102, 1104, 1147
    - Children, sheltered workshops for 1146
    - Special report on 1147
  - Minnesota multiphasic personality inventory 1197
  - Monkeys used in research 67, 799
  - Patients, decrease in number of 1100, 1207, 1212
  - Phenylketonuria 1144
  - Project grants 1198
  - Psychopharmacology Service Center 1162
  - Reserve of 1962 appropriations 1127
  - Schizophrenia 1177
  - St. Elizabeths Hospital Research Center 1153
  - Suicide 1202
  - Training 1129, 1211
  - Voluntary admissions, increase in 1104, 1135
- Milk, food, interstate, and community sanitation 358
  - Arctic Research Center 365, 376
  - Budget, 1963 366
  - Food sanitation 371
  - General engineering program 371, 373
  - Milk sanitation program 370, 373, 377
  - Research grants 369
  - Reserve of appropriations for 1962 369
  - Shellfish sanitation research 28, 363, 372, 373
- Monkeys used in research 67, 799, 874, 1001, 1297

N

- National health statistics 4, 722
  - Budget, 1963 727, 729
  - Criteria for information gathering 735
  - Infant mortality 10, 25
  - Marriage and divorce rate findings 737
  - Other agencies, services of 733
  - Pneumonia trends, statistics on 13, 731
  - Reserve of 1962 appropriations 728
  - Surveys, increases for 730

National Institutes of Health (*see also* Individual Institutes and programs): **Page**
  Allergy and infectious disease, activities 848, 872, 1431
  Announcement of research grants 874
  Applications for grants, analysis of financing of 919
  Arthritis and metabolic disease activities 871, 1368
  Atherosclerosis and need for epidemiological studies 795
  Bioengineering Institute, feasibility of 15
  Budget requests, 1932–63, congressional action on 914
  Budget, 1963:
    Additional funds, use of 811
    Analysis of 4, 805
    Breakdown by activity 916
    History of 863, 911
    Professional judgment budgets for institutes 833
  Cancer institute 837, 867, 1039
  Categorial research grants 798
  Child Health Research Center 855
  Clinical Research Center program 74, 798, 889, 942
  Communication of medical research findings to the practicing professions, report on 9, 30, 81, 759, 813
  Dental Research, Institute of 845, 870, 1335
  Emotional disturbances, importance of research in 905
  Extramural programs, need for new 796
  Fellowship programs 820, 823, 830
  Foreign grants 884
  General Research and Services, National Institutes of Health 796, 834, 867, 920
  Genetics research 792, 994, 1385
  Heart Institute 843, 869, 1243
  Hermes simplex, drug for 815
  Improvements and repairs at 76
  Individual practitioners, research by 893
  International activities 803
  Intramural program, administration of 897
  Manpower report 801, 819
  Measles vaccine, development of 793, 939
  Mental health activities 839, 868, 1090
  Neurology and blindness activities 851, 873, 1487
  Pneumonia:
    Identification of cause of 792
    Trends, statistics on 731
  Primate centers 799, 874, 1001
  Research career award program 797
  Research grant program, description and financing of each 856
  Research grants, announcement of 874
  Reserve of 1962 appropriations 806, 812, 911
  Salary structure 21, 812, 894
  Special resources centers 800
  Staffing problems 804
  Training:
    Budget for 830
    Clinical research training 821
    Funds needed for 823
    Manpower report 801, 819
    Medical schools, possibility of discontinuing grants to 909
    Needs, study of 817
    Recruitment 830
    Residency training 831
    Scientists, mechanics for training 829
  Travel of researchers 900
  Viral research 793
  Washington area, concentration in 79
  World Health Organization activities 889

Page

National Library of Medicine 4, 741
  Biomedical sciences, communication in 764
  Budget, 1963 744
  Communication of health knowledge, report on 759
  Equipment 765
  Medical communication, improvement of 9, 30, 81, 746, 813
  Medical literature, collection of 763
  Medical literature analysis and retrieval system 745
Neurology and blindness activities 851, 873, 1487
  Budget, 1963 1501, 1504
    History of 873
  Cerebrovascular disorders 1539
  Deaths, disabilities and costs 1546
  Expenditures, 1962 1538
  Eye, disease of 1496
  Highlights of program 1547
  Mental retardation 1512
  Multiple sclerosis 1518, 1535
  Muscular dystrophy 1526
  Myasthenia gravis 1529
  Neuromuscular disorders 1527
  Parkinson's disease 1522
  Perinatal study 69, 1504, 1516
  Phenylketonuria 1500
  Puerto Rico project, status of 1516
    Monkeys used in research 67, 1001
  Research grants, budget for 1534
  Reserve of 1962 appropriations 1503
  Speech and hearing disorders 1530
  Standards of patient care 1500
  Temperature regulation in man and animals 903
  Training program 1501, 1536
Nursing services and resources 264

O

Occupational health, Public Health Service 381

P

Personnel, Advisory Committee on 21
Pneumonia:
  Identification of cause of 792
  Trends, statistics on 731
Polio vaccine 29, 138, 143, 939

R

Radiological health 402
  Atomic Energy Commission, activities of 408
  Budget request, 1963 407, 409, 415
  Grants to States 410
  Northeastern Radiological Health Laboratory 409
  Program increases 411
  Radiation:
    Danger level 419, 423, 427
    Increased knowledge of 413
    Intelligence network 415
    Iodine 131, 425
    Leukemia, relation to 418
    Milk:
      Contamination of 40, 422
      Milkshed countermeasures program 427
    Radionuclide count in food, standardization of 424
      Strontium 90, removal of 423
  Radiological safety research 414
  Research and training grants 411
Research and training grant programs 32
Reserves of 1962 appropriations 12, 25
Retired pay of commissioned officers 766

S

Page

- Salary structure 21, 812
- San Francisco, Calif., hospital:
  - Clinical research activity, proposed 17
  - Dental health center 16, 240, 253, 255, 257
  - Nurses home building 16, 18
  - Plague laboratory 18
- Scientific activities overseas (special foreign currency program) 646
  - Countries in which research is conducted 676
  - International Conference Center 715
  - Latin America, program in 712
  - Programs, summary statement on 654
  - Public Law 480 funds, utilization of 711, 718
  - Reciprocal benefits 709
- Surgeon General:
  - Salaries and expenses 767
  - Statement of 1

T

- Tuberculosis control 182

V

- Venereal diseases, control of 10, 23, 43, 194
  - Budget amendment 200
  - Budget request, departmental 231
  - Eradicating cattle diseases, cost of 200
  - Gonorrhea 231
  - Incidence of 43, 44, 197, 230
  - Program results 199
  - Reporting positive tests by laboratories, regulations requiring 199
  - Syphilis:
    - District of Columbia, incidence in the 44
    - Eradication of 23
    - Mandatory bloodtesting, effectiveness of 44
    - Southeast, incidence in the 43
  - Task force, report on 10, 197, 201
    - Vaccine, development of 231

W

- Waste treatment works construction, grants for 466
  - Applications, extent of 467
  - Approved projects, list of 473
  - District of Columbia waste treatment 470
  - Grants:
    - Formula for distribution of 469
    - Limitations for 471
  - New methods, interest in 584
  - Wausau, Wis., system 583
- Water supply and pollution control 428
  - Budget estimates, 1963 436
  - Comprehensive program 450
  - Construction grants services 455
  - Demonstration grants 449
  - Enforcement activities 453
  - Fellowships and training 446, 465
  - Great Lakes study 453, 463
  - Gross report, recommendations of 440
  - Ground water, pollution of 459
  - Illinois waterway program, status of 460
  - Legislation, effect of recent 435
  - Laboratories 59
  - Nonrecurring expenses 439
  - Research, direct 454, 455
  - Research grants 445
  - Reserve of 1962 appropriations 436, 452
  - Services performed by other agencies 458
  - States and interstate agencies, grants to 447, 463
  - Surgeon General, transfer to Office of 439

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